# Textile World

ESTABLISHED 1868


## CONTENTS FEBRUARY 1933


DOUGLAS G. WOOLF
*Editor*

William B. Dall.....*Managing Editor*
Edwin D. Fowle.....*Associate Editor*
Winn W. Chase.....*Assistant Editor*
James A. Austin...*New England Editor*
Ralph C. Maultsby.....*Southern Editor*
Paul Wooton. *Washington Correspondent*



**MANAGEMENT**

"Do I *Have* to Take That One, Mister?" (Editorial)..... 37
The Editor Says..... 38
Allotment Plan Riddled with Bullets of Logic..... 40
Rayon Issue Dominates at Silk Dinner..... 41
Textile Census Confirms Rumors of a Depression..... 42
Underwear Knitters Reorganize Under New Name..... 49
Washington Letter..... 71

**MERCHANDISING**

Outerwear Show Held in New York..... 39
Rayon Production Only 10% Below 1931..... 43
Wholesalers and Retailers Pave Way for Improved Relations 56
Home Furnishings Trend in Radio-City Textiles..... 79

**METHODS**

Using Modern Looms to Reproduce Colonial Coverlets..... 44
Cut-Presser Figures—Procedure for Spring-Needle Design... 46
Warp-Backed Cloths—Comparison with Filling Backed.... 54
Bedford Cord and Its Counterparts—Cote-de-Cheval and Plisse 62
Face-to-Face Starching Reduces Costs..... 64
Textile Projector Shows Knitted and Woven Defects..... 66
Water Marks—Causes, Prevention and Cure..... 69
Matted Fleeces Opened by New Operation..... 70
Questions and Answers..... 74

**MILL ENGINEERING**

Method and Tools for Removing Twister Cylinders..... 50
Decaying Roofs—Modernized to Eliminate Dry Rot..... 58
New Machinery and Processes..... 76

**MEN**

Analysis Effects Economies in Winding Silk and Rayon..... 52
Overseers' Round-Table..... 72
The Personal Page..... 87

**MATERIALS**

Starches and Dextrins for Sizing, Printing, etc. ..... 61
Rabbit Fur Makes Sharp Rise to Popularity..... 68

**INDUSTRY BRANCHES**

Cotton Digest ..... 90
Wool Digest ..... 92
Silk Digest ..... 94
Rayon Digest ..... 96
Knitting Digest..... 98
Processing Digest .....100
Industry-Wide Events ..... 89

**DEPARTMENTS**

Editorial ..... 37
Overseers' Round-Table ..... 72
Personal Page ..... 87
Questions and Answers ..... 74
New Machinery and Processes ..... 76
New Publications and Business News. 78
TEXTILE WORLD Analyst .....102



**BRAGDON, LORD & NAGLE CO., INC.**
**Division of McGraw-Hill Publishing Co., Inc., 330 West 42d St., New York**

**Bragdon, Lord & Nagle Co. Division**
H. G. Lord.....*President*
Frank L. Nagle.....*Chairman*
James H. McGraw, Jr.....*Treasurer*
Herbert O. Barnes.....*Secretary*

**McGraw-Hill Publishing Co., Inc.**
James H. McGraw.....*Chairman of Board*
Malcolm Muir.....*President*
James H. McGraw, Jr.....*Vice-Pres., Treas.*
H. C. Parmelee, *Vice-Pres., Editorial Director*
C. H. Thompson.....*Secretary*

**Branch Offices:**
Washington.....*National Press Building*
Chicago.....*520 N. Michigan Ave.*
Philadelphia.....*16 South Broad St.*
Cleveland.....*501 Guardian Bldg.*
St. Louis.....*1556 Bell Telephone Bldg.*
San Francisco.....*883 Mission St.*
Boston.....*1127 Statler Bldg.*
Greenville, S. C.....*1303 Woodside Bldg.*
Detroit.....*2-257 General Motors Bldg.*
Los Angeles...*839 Chamber of Com. Bldg.*
London, England..*Aldwych House, W. C. 2*



Copyright 1933, by Bragdon, Lord & Nagle Co., Inc.



TEXTILE WORLD

(Formerly *Textile World Journal*) with which are combined *Textiles, Posselt's Textile Journal* and *Textile Advance News.* Published monthly. United States and Possessions, $3 per year; Canada (including Canadian duty), $3.50; all other countries $5, U. S. currency or 25 shillings. Single copy, 35 cents, excepting special issues.

*Member A.B.P.* *Member A.B.C.*

# IT'S YOURS . . .
# *if you want it*

Protection — a regular umbrella over your machinery — a guarantee of satisfactory operation, even quality of product, low maintenance cost: — that's what the Whitin Guarantee can mean to you.

*You can use it* — for Whitin will assume responsibility for Whitin equipment as long as it is 100% Whitin — as long as Whitin repair parts, Whitin Spindles, Rings, Half Laps and the like are used.

*Or you can throw it away* — by relying on miscellaneous makeshift repair and replacement parts. Such parts are too frequently made from unsuitable materials and always lack the accuracy and smooth operation which is obtainable only when the parts are produced with the aid of the original jigs and fixtures.

Let us hold the umbrella over your Whitin Equipment. We will, so long as you use genuine Whitin repair or replacement parts when such are needed.

## WHITIN MACHINE WORKS

ESTABLISHED 1831

*Fales & Jenks Division* *Woonsocket Machine & Press Division*

WHITINSVILLE, MASSACHUSETTS, U. S. A.

Charlotte, N. C. Greenville, S. C. Atlanta, Ga.

February, 1933

# Textile World

PUBLISHED BY BRAGDON, LORD & NAGLE CO.
DIVISION OF McGRAW-HILL PUBLISHING COMPANY, INC.

Vol. 83, No. 2

*Editor:* DOUGLAS G. WOOLF

# *"Do I Have to Take That One, Mister?"*

*I was very much interested in your article on the domestic allotment plan in the January issue, especially your editorial at the bottom of page 41.*

*Might I be so impudent as to ask you, what do you suggest to do instead?*

*I presume you want to maintain the policy of laissez faire, allowing the deflationary movement to continue until all of your subscribers are bankrupt. I doubt if 5% of your subscribers are not in the red for 1932 and the outlook for 1933 is equally as disheartening.*

*We are confronted with a condition of rubber money and iron debts, and it is physically impossible for anyone, be it the ..... Stores or the small rural former, to pay for leases and obligations incurred from 1910 to 1929 with commodity prices at the 1933 level.* (Letter from a hosiery manufacturer to the editor of TEXTILE WORLD.)

NO, we do not consider it "impudent" of this manufacturer to raise the question he asks. However, we feel somewhat strange in the company of the deflationists with which he has classified us.

Of course, if a deflationist is one who does not endorse every type of inflationary proposal, we shall have to plead guilty. But, according to our own crude process of reasoning, opposition to one particular plan can hardly be accepted as evidence of a deflationist complex.

We have stated our reasons for opposing the domestic allotment plan. To sum up those objections, we feel that this plan is entirely unworkable; that it would not result in the controlled production which its proponents claim; that it would impose a burden upon particular groups of our population; and that, due to decreased consumption of the products involved which would result, it would not even bring the relief to agriculture visualized by its proponents. We regard the measure as a thoroughly insincere proposal. We do not believe that any plan, the details of which are unworkable, can be supported with sincerity.

▼

"What do you suggest instead?"

Being rather modest, and having a few other odd jobs to do, we have not as yet formulated a program which will bring the world back to prosperity. We haven't even devised a formula for the treatment of "rubber money and iron debts," despite the fact that we have a personal, as well as an academic, interest in both. However, answering our correspondent's question further, we have suggested, and shall continue to suggest, the following:

From the national viewpoint, we indorse those inflationary measures which we consider workable, and holding a promise of relief to the country as a whole. In this group are such movements as the establishment of the Reconstruction Finance Corporation, the spread of the plant rehabilitation trend, and similar activities which have helped to improve fundamental conditions—and may be expected to contribute further to recovery. We hope we shall have opportunity to endorse additional constructive moves during 1933.

For the textile industry specifically, we have advocated and shall continue to advocate, the support of coordinated activities aimed to balance production with demand, to instill a knowledge of sound cost principles, and to broaden the outlets for textile products.

For individual textile companies, we have urged, and shall continue to urge, the application of new manufacturing and merchandising alertness to meet new conditions; the modernization of plant and product to meet new demands; and the development of a sound price policy to meet a new menace to profits and to wages.

If such a policy can be described as one of "laissez faire," our knowledge of French must be rusty.

▼

However, we did not print this letter as an excuse to defend our position. If the only question involved was whether the editor of TEXTILE WORLD is an inflationist or a deflationist, the communication, interesting though it is, would not deserve such prominence.

The real problem involved is the type of thinking it reflects—a type which is becoming almost national in scope and which may threaten even the slow return to sanity which the more optimistic among us foresee.

If all of us as individuals cannot establish our patriotism or our desire for national prosperity without endorsing an allotment plan or a bonus or an electric currency or any other little trick which someone feels like pulling out of the bag, it is going to be a hard winter—and a lot of them.

If we can't be a little choosy about our weapons, some of us may feel we can't win the war.

# The Editor Says:

WE ADMIRE the courage of those textile manufacturers—including Austin T. Levy, Sigmund Odenheimer, Charles B. Rockwell, Jr., and others—who went to Washington to testify in favor of the Black 30-hour-week bill. They not only gave their time in behalf of a cause, but they undoubtedly knew in advance that they would be targets for abuse. They represent a force which is much needed in the textile industry: a militant minority not unwilling to espouse an unpopular cause. Their numbers, we hope, will multiply in the future. They will make some mistakes, undoubtedly, but they will not commit the cardinal sin of automatically resisting a new idea. We happen to know, from personal contacts, that there is a far greater number of textile manufacturers, both North and South, in favor of legislation to restrict length of the work-week, than any public referendum would uncover. The price which textile men still must pay for individuality of thought is too heavy for any but the most hardy. . . . However, much as we admire these men, we cannot agree with the conclusions they presented. It is not that we are opposed to a 30-hour week if that is necessary to pull us out of the mess we are in. Frankly, we do not know whether it would or not—and we doubt that anybody else knows. Nor are we concerned particularly about the constitutionality of the bill. If we refused to put to the test all legislation whose constitutionality might be questioned, we wouldn't go very far as a nation. Times change—and so does the temper of the Supreme Court. . . . Nevertheless, we can't see the practical application of a national 30-hour law to the present emergency. Here is the situation: One of two things would happen. If the law carried no mention of wages, pay-envelopes would soon be adjusted to a ratio representing the relationship between the new work-week and the old. No new purchasing power would be provided. For all practical purposes, the measure would amount to merely a legal enforcement of the share-the-work movement. That, in itself, would benefit many of those who are now unemployed—at the expense of the remainder, of course—but that is not the objective of the proponents of the bill, as we understand it. On the other hand, if the law provided that existing weekly wage rates should be maintained despite the cut in hours, and even if the constitutionality of such a provision were sustained, how on earth could such a measure be enforced? Can you visualize the vast army of Federal inspectors which would be required to see that no more than 30 hours are worked and that no less than the pre-prohibition wage scale is paid? . . . Can wage cuts be legislated out of existence? In the United States at this stage of its development, whether fortunately or unfortunately, No!

❖

AS OUR readers know, this does not mean that we are opposed to a shortening of the work-week in textile manufacture. On the contrary, we have expressed our belief in the advisability, in fact inevitability, of such a development. Furthermore, we agree with those who desire uniformity in hours among textile-producing States. This belief is not based upon a desire for a leveling-out process, but rather upon a conviction that there must be a uniform maximum of hours to be worked, as well as a uniform policy on night-work, if any attempts to balance production with demand are to be successful. That is why we have supported such movements as the "55-50" and "women and minors" policies in the cotton textile industry. But we are not unconscious of the limitations inherent in "gentlemen's agreements." Consequently, we are in sympathy with those manufacturers who have been agitating for a national 48-hour law applied to textile mills. (The 48-hour base, of course, just happens to be the length usually mentioned. It might be 44; it might be 50. Uniformity is the primary requisite.) But here, too, even the proponents of this idea realize only too well that there is still a process of education to be undergone before, first, a sufficient majority of the industry will believe in such a plan; and, second, enough members of that majority will publicly admit their belief. . . . As a parting thought on this whole subject, we refer you to the Washington letter in this issue. Our correspondent states, in effect, that much legislation which wouldn't have a Chinaman's chance in normal times, is more than a vague possibility under present conditions. People at large are thinking thoughts, nowadays; and legislators, eventually, begin to think likewise. So, whether or not you or I like it, we *may* have work-week legislation on the statute books this year. Consequently, it behooves us to give a little thought—and expression—to just what we think such legislation, when and if we get it, should prescribe; and just what we are going to do to make such legislation, when and if we get it, a help in this emergency rather than another nuisance.

❖

HAVING written a little piece entitled "Shrink and Sell!" about a year ago, we were particularly interested in a recent issue of *Cotton Chats* (Draper Corp.) carrying the heading "Forget the Past—Accept the Present—Get Busy." We wish we could reprint it all; here is a sample: "We shall not see clearly or act sensibly until we forget 1929. . . . This is 1933. Letting George do it was the policy of 1930 while we were still dazed by the crash of October, 1929. It doped us with false hopes in 1931. It kept our eyes on Washington in 1932. This is 1933. Conditions are as they are. We know not how long they may continue. Let's accept them and carry on. As business-men we can put our businesses in shape to meet, so far as possible, present conditions. As citizens we can insist upon reduced Government expenses and lower taxes—now a burden to all classes. As neighbors we can see that no one suffers from hunger and cold. As individuals we can resume the ways of a normal existence, mindful that a dollar in the marts of trade is worth ten in charity. So shall we win to better days, for God's covenant of the rainbow was not for Nature's storms alone."

❖

AN INDUSTRIAL engineer tells us that, in the case of several of the woolen and worsted mills in which he had installed his standard cost-systems, the companies went out of business shortly thereafter. He is not accepting the blame for this; nor is he advertising: "Take Our Treatment and Quit!" But this is what happened: The installation of the cost system showed the company in question that its costs were entirely out of line with its selling-prices. You'd think a manufacturer would always know this himself, but you'd be surprised. . . . In one case, where a mill went out of business about a year after installing the cost system, the former owner wrote to the engineer and stated that if he had put in the system several years before, he would have "retired" much earlier and saved himself a great deal of money. . . . Ostriches, of course, will not be interested in this item.

# *Outerwear Knitters*

## HOLD INDUSTRIAL SHOW AND CONVENTION

NEW YORK CITY is the gathering-place of manufacturers and distributors of knitted outerwear, this month, on the occasion of "Knitted Outerwear Week." The two highlights of the program arranged by the National Knitted Outerwear Association are the first annual Knitwear Industrial Exposition, being held Feb. 13–17, inclusive, at the Grand Central Palace, and the annual convention of the association.

Up to the moment of writing, about 30 firms which specialize in selling equipment and materials to the outerwear industry had reserved booth space for the show, and indications were the total would be well in excess of this figure when the exposition opened. These exhibits cover the entire range of yarn, fabric, machinery and dyeing and finishing equipment and products, including many new equipment features now being displayed for the first time.

Simultaneously with the industrial show, the association is holding its annual convention. The convention comprises two extended luncheon sessions, Tuesday, Feb. 14 and Wednesday, Feb. 15; this event will be held on the same floor as the show, but in a separate division.

The program for "Knitted Outerwear Week" excited widespread attention among knitwear manufacturers, especially the sweater and swimsuit divisions, and indications pointed to a large attendance of knitters, both from the main outerwear centers such as Milwaukee, Cleveland, and Philadelphia, and from other districts. The association timed the events to coincide with the annual visit of manufacturers to the New York market for the purpose of familiarizing themselves with the newest developments in equipment, and placing such orders as their needs dictate. It also fits in with the opening of the spring outerwear season for the retail trade, and manufacturers planned to stimulate distributor interest by making the buyers their guests at the exposition.

The courage of the association in initiating the equipment show, at a time when business conditions generally were far from propitious, prompted much favorable comment from both the outerwear knitters themselves and equipment manufacturers.

While various details of the convention program still awaited adjustment at press-time, the program was sufficiently advanced to give a comprehensive idea of its scope.

The convention will be formally opened at the Tuesday luncheon, and the chief features of that session are: reports of officers; report of the secretary; reports of committees; a symposium on "Profits in Manufacturing and Distribution of Knitted Outerwear"; discussion.

The symposium will be opened by W. L. Churchill, industrial engineer and author of "Pricing for Profit," and prominent representatives of the outerwear industry will speak. Among the profit aspects to be considered are: elimination of waste in manufacture, calculation of production costs, sales cost, and general budgeting.

The chief feature of the Wednesday luncheon session is a discussion of distribution in all its aspects, led by R. G. Parker, of W. T. Grant Co., Harold R. Lhowe, executive director, and John Sichel, chairman of the committee on sales and distribution. The significance of this session is that it will mark the crystallization of nearly 12 months of cooperative work done by the association with the Wholesale Dry Goods Institute, looking to more satisfactory relations between the manufacturer and the distributor. Representatives of the selling agents are expected to take part in the discussion, at the conclusion of which the convention will adopt resolutions.

*Harold R. Lhowe, who with John Sichel will lead knitters discussion of distribution*

The convention concludes Wednesday evening, with a banquet at the Park Central Hotel, New York. Plans provide for an address by a man prominent in national affairs. The remainder of the evening will be devoted to entertainment.

In announcing convention plans, Sidney Korzenik, secretary of the association, explained that the convention was restricted to luncheon sessions, so that manufacturers could attend both the convention and the exposition in the same day. The industrial show marks a new departure by this organization, and it is hoped to make it an annual feature of the industry's calendar.

The exposition committee of the association comprises: William Portner, Franklin Sweater Mills, chairman; Bernard Weil, Rose Mills, vice-chairman; Dan F. Byrnes, Bradley Knitting Co.; A. Paul Cohen, Suffolk Knitting Mills; A. Dunner, Fred H. Samuels & Co.; Samuel Goldworm, Goldworm-Sportswear Co.; Sidney Friedman, Friedman-Blau-Farber; Joseph B. Knipe, Walter E. Knipe Co.; Sidney Korzenik, secretary of the association; Philip Leff, National Spinning Co.; Harold R. Lhowe, counsel for the association; John Sichel, Dearnley Bros.; Daniel Starr, Starr Knitting Mills. A. B. Coffman is exposition manager. Associated with his is M. E. Thayer.

*(Guide to exhibits will be found on page 99)*

# *Allotment Plan*

## RIDDLED WITH BULLETS OF LOGIC

MANUFACTURERS, merchants and exporters have raised their voices in protest against the destructive features of the National Emergency Agricultural Act, or the so-called domestic allotment plan, which passed the House in January.

Members of Congress received communications from the Association of Cotton Textile Merchants of New York in which it was declared that enactment of the pending agricultural relief bill, or similar legislation, "would bring a minimum of temporary benefit and would finally result in serious detriment to the cotton farmers, to the cotton textile industry, and to the whole American people." Examples of the burden of the tax on the consumer were cited—40% on retail price of blue denim overalls, 50% on chambray work shirts.

The National Association of Cotton Manufacturers formed a committee to represent the industry in fighting the domestic allotment plan. Ernest N. Hood, president of the association, said: "In this period of unemployment, such a law will make more unemployment. It will cause hesitation in trade; it will disrupt wholesale and retail merchandising. It will reduce exports and increase imports."

Col. G. Edward Buxton, president of the Fruit-of-the-Loom Mills, and head of the Maine group of mills, came forward with the suggestion of a substitute for the domestic allotment plan in the cotton industry. His idea would have the Government give to each cotton farmer one bale of cotton for every five-acres reduction in his acreage devoted to cotton in 1933 up to a maximum curtailment of 40%. This plan, according to Col. Buxton, would not only greatly reduce cotton production for the crop year, and thus raise prices, but would enable the Government to dispose of the surplus cotton held by the Department of Agriculture and by the cooperative associations. He estimated that the price of cotton would advance to at least 10c. under his plan.

Representatives of both the National Association of Cotton Manufacturers and the American Cotton Manufacturers Association appeared before the Senate Committee on Agriculture and attacked the measure with devastating statements of cold logic. Ernest N. Hood, president of the National Association, warned that the public would boycott the commodities taxed under the proposed bill; that cotton mills would be forced to suspend operation; that mill workers driven out of employment in the cotton growing States would first consider returning to the cotton farms and thus add to the acreage planted; that farmers who do not participate in the plan would increase to a degree exceeding any reduced planting elsewhere achieved; and that "the disastrous results will be so cumulative and pronounced by the end of the year that it is unthinkable that the government will wish to continue the program."

William D. Anderson, representing the American Cotton Manufacturers Association, also opposed the bill but added that, if it is to be enacted, it is absolutely necessary to amend it in several ways in order to protect the cotton manufacturing industry. As an alternative to the plan, he endorsed the Smith bill for a "warehouse crop" of cotton, pointing out that if farmers were sold Government cotton on credit at present prices, on condition that they would reduce their 1933 acreage by at least 50%, the price would go to at least 10c. per lb.

Mr. Anderson's statement was one of the most forceful analyses made of the plan thus far.

George A. Sloan, president of the Cotton-Textile Institute, released statements showing the potential effect of the plan upon prices of fabrics most necessary for the simplest wearing apparel for men and women and for home consumption. The factual data presented, representing the results of careful study made by the Cost Engineering and Statistical Departments of the Institute, demonstrated that the result would be to increase, directly and substantially, the cost of living for the average wage earner.

A group of cotton mill executives conferred with Prof. Raymond Moley, one of President-elect Roosevelt's advisers, and several prominent members of Congress in regard to the proposed legislation. While expressing their concern for the farmers' problems, the mill men emphasized their grave doubt as to whether the solution would be reached through the so-called Parity Plan whereas at the same time it would involve great hardship to cotton manufacturers and their customers who comprise the entire public.

Leavelle McCampbell, in a letter to the National League for Economic Stabilization, pointed out grave inaccuracies in a statement made by that league purporting to show that the plan would merely give the planter 2 to 2½c. for the cotton that is in an "ordinary $2.00 shirt."

Charles Cannon, in a further analysis of the bill, added to the forceful argument which he had previously presented, as reported in last month's issue. Leon Lowenstein, treasurer of M. Lowenstein & Sons, Inc., Inc., pointed out in a letter to Speaker Garner that the plan is undesirable, unworkable, and a menace rather than a help to agriculture, to the industries affected, and to the country in general.

An appeal to President Hoover to veto the bill, should it pass the Senate, was made by the Silk Association of America, which branded the bill as "the most unjust form of class legislation," and pointed out that it would "disastrously operate to the disadvantage of the textile industry which has suffered in recent years more heavily than any other industry except the rubber industry."

## RAYON ISSUE DOMINATES AT

# *Silk Dinner*

***Paulino Gerli, president of Silk Association, who advised that the industry recognize the "avalanche of rayon."***

THE third week of January was "Silk Week" in New York with trade attention divided between the Spring Fabric Exhibit held Jan. 17 to 20, and the sixty-first annual dinner of the Silk Association, held Jan. 19, at the Waldorf-Astoria Hotel. Rayon competition was the outstanding thought in the minds of everyone connected with silk throughout the week, the issue finally being crystallized by Paulino Gerli, president of the Silk Association, in his annual address at the dinner.

The keynote of Mr. Gerli's address was that the silk industry must reorganize and "put its house in order" to meet the new issue. He spoke bluntly about facing an "avalanche of rayon," and said numerous trade leaders constantly were telephoning him "offering condolences on the death of silk." His own reaction, the president added whimsically, was that the death story, like that about Mark Twain, had been slightly exaggerated. Mr. Gerli tempered his discussion with touches of humor, but there was no belying the gravity of the picture as drawn by him. Indeed, numerous important silk men, in personal asides at the dinner, said they thought the president had, if anything, underestimated the seriousness of the situation from the silk industry's point of view. The chief effect, however, is expected to be felt by importers, since the fabric mills already are turning very rapidly to synthetics.

A few of the highlights of Mr. Gerli's address follow. Referring to the great increase of late in rayon fabric output by mills formerly 100% silk manufacturers, he said:

"It has been suggested that right now the association is masquerading under false colors and that our name is not truly representative of the activities of our group. Progressively for the last few weeks we have witnessed a development now reaching the proportions of an avalanche, and we should now define what the association is and what it stands for."

The association, he proceeded, is built around the production of fine fabrics, adding that "silk has been and will continue to be the means of interpreting to our consuming world the skill and art that is in us." He insisted however on the necessity of the association adapting itself "to the order of the day" so that "the best interest and welfare of members shall be fostered." Pointing out that the fabric manufacturer dominates in the association, Mr. Gerli said this factor must remain the major interest of the group, irrespective of fiber trends.

He was confident that silk will survive the problem of synthetic fabric competition, commenting that "she has stood too much for the last 4,000 years to give up the ghost without a struggle." Complimenting the rayon industry for its remarkable progress in the development of fine yarns, he said:

"Rayon has its field. So, I believe has silk, and will continue to have. That day only when the science of the chemist shall have duplicated in all its properties the marvelous products of the humble silk worm, shall I acknowledge that its product has outlived its usefulness."

The cue for the silk producing industry, Mr. Gerli continued, is to get into closer touch with modern economic development. This need, he indicated, was acute in the silk producing countries where silk has relied "too long on its traditions and ancient history." He emphasized the interrelation of textiles in international trade, and, as one aspect of the problem, he added:

"Think for instance of Japan as a buyer of our cotton without the compensating factor of its silk export."

The significance of Mr. Gerli's address is best appreciated when measured in the light of other developments of the week. At the distributor conventions being held simultaneously in New York, the silk-rayon issue was a topic of lively discussion. Jay D. Runkle, divisional merchandising manager for B. Altman & Co., New York, told the piece goods division of the N.R.D.G.A. convention that fabrics of silk and synthetic yarn mixtures would dominate for spring and that all-silk would be very much out of the picture.

Mr. Runkle's statement was a leading theme of talk at the Silk Association dinner and, while some silk men were apt to discount it, the prevailing thought was that it came close to accurate forecast.

The silk men did not allow Mr. Gerli's somber thoughts to hinder the enjoyment of their dinner. The event was signally successful socially and was attended by about 700 representatives of silk and allied industries. Other speakers of the evening included: James A, Farley, chairman of the Democratic National Committee, who pledged the incoming administration to strong support of the textile industry; ex-Gov. A. Harry Moore, of New Jersey and Harvey D. Gibson, of the Manufacturers Trust Co.

The Spring Fabric Exhibit was held at the New York headquarters of the Silk Association throughout the week, and included about 300 samples of the latest fabrics contributed by 30 manufacturers. Here too the synthetics made their appearance, chiefly in silk-and-acetate mixtures, and this group included some of the most beautiful fabrics of the showing. The exhibit indicated the outstanding importance of rough-surfaces and included an attractive range of printed crinkles.

# *Textile Census*

## CONFIRMS THE RUMOR OF A DEPRESSION

IF THE average textile manufacturer needs confirmation of the fact that there has been a depression, he can find it in the data of the 1931 Census of Manufactures, released recently. For his peace of mind, it is probably just as good that the figures do not extend through 1932.

Naturally, the worst of the grief is portrayed by the statistics on value of textile products in 1931 as against 1929. Compared with the dollars-and-cents items, the totals on poundage or yardage are quite respectable. For example, the total value of cotton goods produced in 1931 decreased 47% from 1929, while the number of square yards of woven goods over 12 in. (the principal item in that category) declined only 16%. Similarly, value of woolen and worsted goods dropped 40% but yardage of woven goods only 24%; value of silk and rayon goods was off 45% while yardage of broad goods declined noly 5%; value of knit goods decreased 37% but quantity of hosiery produced dropped only 16%, shirts and drawers 13%, and sweaters 17%.

In order that manufacturers may be able to visualize the trend in the branches of the industry in which they are individually interested, we present on this page a table showing the 1931 and 1929 figures on quantity production of the major items. To make the trends more apparent, we have added a column showing the per cent of increase or decrease in 1931 as against 1929.

In cotton goods, it will be noted, only one of the major items showed an increase; draperies, exclusive of velvets and plushes, were 4% greater in quantity in 1931. Classifications which declined less than 10% included towels, towelings and washcloths; tobacco, cheese, and similar cloths; print cloths, and all-cotton shirtings. A decline of 10% to 25% was registered by sheetings, osnaburgs, denims, blankets, and voiles. Products whose output decreased from 25% to 50% included tire fabrics, ounce duck, numbered duck, drills, twills and sateens, and sales yarn. Ginghams were the only fabric declining more than 50%, the drop being 62%.

A study of the woolen and worsted goods data discloses some extremely interesting facts. While woolen fabrics for men's wear decreased 44% and worsted fabrics for the same purpose declined 14%, woolen goods for women's wear increased 31% and worsted goods for women's wear just held their own. A pecular trend is also noted in pile fabrics (exclusive of women's coatings) where those made of mohair, including combinations with wool, declined 56% while other pile fabrics increased 1172%.

The increasing part which rayon is playing in the program of the average silk mill is reflected in the data on silk and rayon goods. Whereas all-silk broad goods declined 9%, all-rayon broad goods increased 65%. The output of silk-mixed goods from these plants declined 63% while the production of rayon-cotton mixed goods increased 11%.

In hosiery, the quantity of full-fashioned produced declined 11% as against an 18% decline in seamless. In underwear, the output of shirts and drawers declined less than did union suits—the drop in the former being 13% and in the latter 23%. In outerwear, sweaters dropped 17%. The fact that bathing suits declined only 6% and athletic and golf hose increased 93% reflects the continued expansion of recreational activities.

### *Principal Census Items, 1931, Compared with 1929*

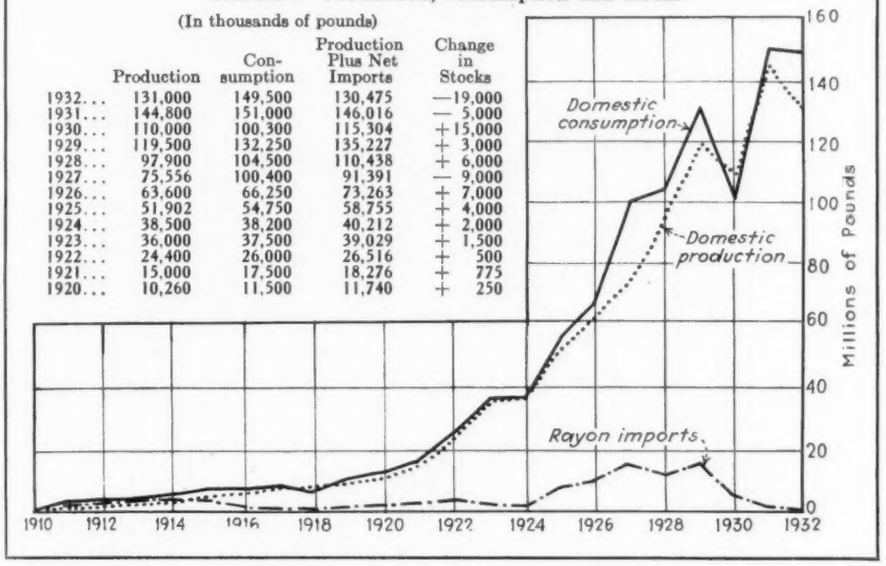
| | 1931 | 1929 | % Increase or Decrease |
|---|---|---|---|
| *Cotton Goods*, total value | $798,746,181 | $1,514,297,826 | —47 |
| Woven goods (over 12 in.), sq.yd. | 7,140,653,283 | 8,541,545,733 | —16 |
| Tire Fabrics, sq.yd | 156,749,869 | 302,864,499 | —48 |
| Ounce duck (except tire), sq.yd. | 111,573,070 | 188,058,220 | —41 |
| Numbered duck, sq.yd | 25,004,291 | 35,867,721 | —31 |
| Osnaburgs, sq.yd | 109,081,127 | 145,744,846 | —25 |
| Sheetings, sq.yd | 1,359,686,479 | 1,693,167,162 | —20 |
| Drills, sq.yd | 184,646,435 | 324,041,245 | —43 |
| Denims, sq.yd | 202,110,728 | 249,891,122 | —19 |
| Blankets, sq.yd | 71,989,193 | 94,060,907 | —23 |
| Towels, etc., sq.yd | 158,377,562 | 169,694,153 | — 7 |
| Tobacco cloths, etc., sq.yd | 587,146,712 | 617,410,845 | — 5 |
| Print cloths, sq.yd | 1,586,338,969 | 1,703,025,248 | — 7 |
| Voiles, sq.yd | 124,364,380 | 157,449,397 | —21 |
| Twills and sateens, sq.yd | 201,434,466 | 284,117,406 | —29 |
| Ginghams, sq.yd | 56,312,817 | 147,120,296 | —62 |
| Draperies (except velvets and plushes), sq.yd | 235,853,018 | 226,671,163 | + 4 |
| Shirtings (all-cotton), sq.yd | 243,392,618 | 265,830,195 | — 9 |
| Shirtings (cotton-rayon), sq.yd. | 29,785,296 | 51,215,397 | —41 |
| Fabrics (except shirtings and draperies) in chief value of cotton, containing rayon, sq.yd. | 107,614,057 | 151,560,453 | —29 |
| Fabrics (except draperies) entirely or in chief value of rayon, sq.yd | 120,756,915 | 85,664,430 | +41 |
| Yarns (for sale), lb | 410,160,186 | 647,725,439 | —37 |
| *Wool Goods*, total value | $479,572,917 | $802,875,595 | —40 |
| Woven Goods, sq.yd | 389,831,492 | 513,951,168 | —24 |
| Men's wear fabrics: | | | |
| Woolen, sq.yd | 58,599,646 | 105,751,689 | —44 |
| Worsted, sq.yd | 112,215,040 | 130,318,343 | —14 |
| Woolen and worsted, with cotton or manipulated warps, sq.yd | 41,550,658 | 83,435,610 | —49 |
| Women's-wear fabrics: | | | |
| Woolen, sq.yd | 67,467,911 | 50,709,337 | +31 |
| Worsted, sq.yd | 37,213,019 | 37,182,796 | .... |
| Woolen and worsted, with cotton or manipulated warps, sq.yd. | 7,497,023 | 10,795,928 | —30 |
| Blankets: | | | |
| All-wool, sq.yd | 15,353,497 | 18,094,945 | —17 |
| Cotton-wool mixed, sq.yd | 15,946,240 | 28,064,076 | —43 |
| Pile Fabrics: | | | |
| Mohair, sq.yd | 14,096,525 | 31,732,243 | —56 |
| Other, sq.yd | 7,417,852 | 583,468 | +1172 |
| Yarns (for sale), lb | 141,621,376 | 159,473,453 | —11 |
| *Silk and rayon goods*, total value | $375,857,011 | $680,484,925 | —45 |
| Broad goods (except velvets, etc.), sq.yd | 566,862,129 | 597,113,792 | — 5 |
| All-silk, sq.yd | 386,292,116 | 424,607,181 | — 9 |
| All-rayon, sq.yd | 109,389,943 | 66,024,378 | +65 |
| Silk-mixed, sq.yd | 22,368,651 | 59,452,422 | —63 |
| Rayon-cotton mixed, sq.yd | 41,077,342 | 37,240,687 | +11 |
| Velvets, sq.yd | 7,346,438 | 9,650,631 | —24 |
| Plushes, sq.yd | 1,878,859 | 1,956,654 | — 4 |
| Upholsteries (except velvets and plushes), sq.yd | 2,908,737 | 2,869,041 | + 1 |
| Threads and yarns (for sale): | | | |
| Thrown silk, lb | 9,723,267 | 12,121,022 | —20 |
| Spunsilk, lb | 1,914,137 | 3,769,133 | —49 |
| Ribbons, value | $15,388,483 | $25,007,932 | —38 |
| *Knit goods*, total value | $553,132,828 | $881,176,157 | —37 |
| Hosiery (except infants' and golf hose), doz. pr | 93,177,155 | 111,190,705 | —16 |
| Full-fashioned, doz. pr | 28,333,282 | 31,929,245 | —11 |
| Seamless, doz. pr | 64,843,873 | 79,261,460 | —18 |
| Infants' hose, doz. pr | 5,520,023 | 6,174,838 | —11 |
| Underwear, total value | $78,564,594 | $135,092,008 | —42 |
| Shirts and drawers, doz | 7,634,204 | 8,801,924 | —13 |
| Union suits, doz | 6,847,971 | 8,891,124 | —23 |
| Outerwear, total value | $111,322,999 | $149,856,408 | —26 |
| Sweaters, etc., doz | 3,989,313 | 4,807,422 | —17 |
| Bathing suits, doz | 959,736 | 1,021,433 | — 6 |
| Athletic and golf hose, doz. pr. | 2,120,451 | 1,105,498 | +93 |
| Knit cloth, total value | $45,015,774 | $67,818,801 | —34 |

# *Rayon Production* OFF ONLY 10%

**TABLE I—Production, consumption and stocks**

(In thousands of pounds)

| | Production | Consumption | Production Plus Net Imports | Change in Stocks |
|---|---|---|---|---|
| 1932... | 131,000 | 149,500 | 130,475 | —19,000 |
| 1931... | 144,800 | 151,000 | 146,016 | — 5,000 |
| 1930... | 110,000 | 100,300 | 115,304 | +15,000 |
| 1929... | 119,500 | 132,250 | 135,227 | + 3,000 |
| 1928... | 97,900 | 104,500 | 110,438 | + 6,000 |
| 1927... | 75,556 | 100,400 | 91,391 | — 9,000 |
| 1926... | 63,600 | 66,250 | 73,263 | + 7,000 |
| 1925... | 51,902 | 54,750 | 58,755 | + 4,000 |
| 1924... | 38,500 | 38,200 | 40,212 | + 2,000 |
| 1923... | 36,000 | 37,500 | 39,029 | + 1,500 |
| 1922... | 24,400 | 26,000 | 26,516 | + 500 |
| 1921... | 15,000 | 17,500 | 18,276 | + 775 |
| 1920... | 10,260 | 11,500 | 11,740 | + 250 |




DOMESTIC stocks of rayon held by producers at the close of 1932 showed a sharp drop as compared with the close of the previous year, due to the fact that consumption of this product last year held close to the record figure of 1931, while production of rayon, due to curtailed operations last summer, dropped 10%, according to records compiled for the industry by the Tubize Chatillon Corp., contained in a special supplement of the *Textile Organon,* published by that corporation.

Rayon production in 1932, states the publication, totaled 131,000,000 lb., a decline of 10% from the 1931 total of 144,800,000 lb., the reduced output being due to the curtailed activity of last summer, which was almost made up by the 100% activity experienced during the past four months. Consumption in 1932 amounted to 149,500,000 lb. against the record consumption of 151,000,000 lb. reported in 1931. The data is on the basis of 100% of the industry, the 5% non-reporting capacity having been estimated to this end.

"The current activity is reflected in the stock figures which show that 1932 year-end inventories amount to only a 3-weeks supply as against a 'normal' 7-weeks supply at the end of 1931," states the *Organon.* "These December 1932 stocks were probably lower in relation to sales than they ever have been before.

"Domestic consumption of rayon in 1932 was again ahead of production, as indicated by the decrease in stocks, and in spite of an export balance for American rayon in international trade. Incidentally, this rayon export balance set another precedent for the American rayon industry, even though the said export balance was but a very modest one.

**TABLE II—Production by process**

(In per cent)

| | 1927 | 1930 | 1931 | 1932 |
|---|---|---|---|---|
| Viscose.. | 87.5 | 83.5 | 87.8 | 80.8 |
| Other... | 12.5 | 14.7 | 12.2 | 19.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

"The production of yarn by process shows a decline in viscose process yarn, from 87.8% of the total production in 1931 to 80.8% of the 1932 total. The production of yarns by denier shows the heavy concentration of production on the fine deniers in 'other' yarns, as contrasted with the viscose output."

The *Organon's* estimate of 1932 production represents a sharp increase over the total estimated by TEXTILE WORLD last September. However, the earlier calculation was based on estimates made by the various companies in August, before the full effect of the improvement could be gaged.

It was stated in these columns at that time that it was extremely difficult to make a prediction for the balance of the year.

**TABLE III—Classification of production by denier**

| Denier | 1929 Total | 1931 Viscose | 1931 Others | 1931 Total | 1932 Viscose | 1932 Others | 1932 Total |
|---|---|---|---|---|---|---|---|
| 75 & finer (87 & less) | 11.0 | 1.3 | 15.1 | 2.2 | 1.6 | 11.3 | 2.9 |
| 100 (88-112) | | 10.9 | 22.9 | 11.6 | 18.8 | 20.7 | 19.1 |
| 125 (113-137) | 73.4 | 0.7 | 21.6 | 2.0 | 1.8 | 11.0 | 2.8 |
| 150 (138-162) | | 73.0 | 37.0 | 70.6 | 66.1 | 56.8 | 65.0 |
| 175 (163-187) | | 0.1 | 3.1 | 0.4 | .... | .... | .... |
| 200 (188-249) | | 0.9 | .... | 0.8 | 2.0 | .... | 1.8 |
| 300 (250-374) | 15.6 | 11.1 | 0.3 | 10.4 | 8.2 | 0.2 | 7.3 |
| 450 (375-524) | | 1.3 | .... | 1.3 | 0.8 | .... | 0.6 |
| 600 & coarser (525 up) | | 0.7 | .... | 0.7 | 0.7 | .... | 0.5 |
| Total per cent.. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**TABLE IV—Distribution by trades**

(In per cent)

| Year | Hosiery | Underwear | Other Knit Goods | Cotton | Silk Broad | Silk Narrow | Wool | Braids | Miscell. | Total Knit Goods | Total Woven and Misc. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1912..... | 30 | .. | 7 | 10 | 10 | | 3 | 10 | 30 | 37 | 63 |
| 1913..... | 40 | .. | 5 | 12 | 10 | | 3 | 5 | 25 | 45 | 55 |
| 1914..... | 47 | .. | 3 | 14 | 12 | | 2 | 3 | 19 | 50 | 50 |
| 1915..... | 65 | .. | 5 | 15 | 5 | | 2 | 2 | 6 | 70 | 30 |
| 1916..... | 56 | .. | 11 | 12 | 9 | | 1 | 3 | 8 | 67 | 33 |
| 1917..... | 45 | .. | 15 | 13 | 15 | | 1 | 4 | 7 | 60 | 40 |
| 1918..... | 40 | .. | 17 | 13 | 18 | | .. | 5 | 7 | 57 | 43 |
| 1919..... | 28 | 1 | 17 | 13 | 18 | | 1 | 13 | 9 | 46 | 54 |
| 1920..... | 25 | 1 | 21 | 10 | 13 | | 1 | 14 | 15 | 47 | 53 |
| 1921..... | 23 | 2 | 29 | 9 | 12 | | 1 | 10 | 14 | 54 | 46 |
| 1922..... | 24 | 4 | 26 | 10 | 11 | | 1 | 11 | 13 | 54 | 46 |
| 1923..... | 22 | 5 | 25 | 11 | 15 | | 1 | 10 | 11 | 52 | 48 |
| 1924..... | 23 | 11 | 14 | 15 | 18 | | 1 | 8 | 10 | 48 | 52 |
| 1925..... | 28 | 13 | 5 | 26 | 16 | | 1 | 4 | 7 | 46 | 54 |
| 1926..... | 25 | 24 | 3 | 21 | 14 | | 1 | 1 | 11 | 52 | 48 |
| 1927..... | 21 | 28 | 4 | 24 | 14 | | 1 | 2 | 6 | 53 | 47 |
| 1928..... | 18 | 32 | 4 | 21 | 14 | | 1 | 5 | 5 | 54 | 46 |
| 1929..... | 19 | 32 | 4 | 21 | 13 | | 1 | 5 | 5 | 55 | 45 |
| 1930..... | 17 | 40 | 5 | 18 | 9 | | 1 | 5 | 5 | 62 | 38 |
| 1931..... | 12 | 29 | 4 | 34 | 15 | 1 | .. | 2 | 3 | 45 | 55 |
| Viscose... | 9 | 31 | 2 | 36 | 16 | 1 | .. | 2 | 3 | 42 | 58 |
| Others.... | 51 | 10 | 23 | 7 | 6 | .. | .. | .. | 3 | 84 | 16 |
| 1932..... | 12 | 22 | 4 | 38 | 19 | 1 | .. | 1 | 3 | 38 | 62 |
| Viscose... | 9 | 23 | 2 | 41 | 20 | 1 | .. | 1 | 3 | 34 | 66 |
| Others.... | 41 | 14 | 19 | 11 | 13 | .. | .. | .. | 2 | 74 | 26 |

—Incl. in "Broad Silk" before 1931—

# Colonial Coverlets

**By W. E. Shinn**
*Head, Weaving and Designing Division, Clemson College Textile Department*

*Fig. 1. Bedspread and rug woven from Double Chariot Wheel design*

AMERICAN art had its beginning with the hand loom. The rugged life of pioneer days found little use for the palette, the brush, or the easel. It was the hand loom which found its way to the frontier and there furnished a medium for creative work. The hand-woven coverlet, in which decorative design and color were happily blended, was an outstanding example of colonial weaving and is closely associated with early American life. Coverlets were woven in the South, the West, Pennsylvania, and New England. Although the looms were simple in construction, a wide variety of patterns were woven into fabrics of great ornamental value.

Patterns for the colonial coverlets were brought to America by settlers from various countries. In Pennsylvania the craftsmen were German. In New Hampshire the Scotch weavers did excellent work. In other sections the craftsmen were French, descendents of the Huguenots, who produced fine woven fabrics in France under Louis IV. The colors used in the colonial spreads were largely of vegetable origin.

Recently there has been a revival of interest in the textiles of the early colonial period in America. In keeping with this interest has come keen appreciation for the old coverlets. Collectors of antiques are attracted to museums when exhibitions of coverlets are announced, and the house which possesses one of these old fabrics for use as a spread or hanging is envied.

The designs used in hand-woven coverlets consisted chiefly of geometric forms comparatively simple in shape but so combined to produce repeats which were often 6 in. or more in width. Usually the patterns were given names, which were sometimes descriptive of the effect produced therein. An example of such a design is shown at Fig. 1. This style is known as the "Double Chariot Wheel." The composition consists of a series of four roundels grouped together to suggest the four wheels of a chariot. This old pattern is being reproduced by Louisville (Ky.) Textiles, Inc., It is available in eight multicolored combinations, as well as in a range of six colors in combination with white. A simple variation in the draft enables the wide border to be reproduced without the use of additional harnesses. Similar designs have been woven into rugs for use in the bedroom as shown at Fig. 1.

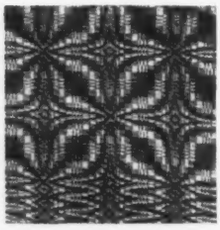


*Fig. 2. Kentucky Star Leaf design*

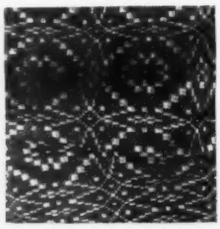
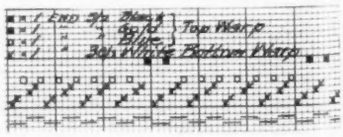


*Fig. 3. Maltese Cross design*

Kentucky was a center of weaving interest in the old days, and many effective designs were created there. At Fig. 2 is shown a modern spread woven from a design originally known as the "Kentucky Star Leaf." This style is produced in a single color with white; but by an effective interweaving of the black and white threads, a third tone is secured which adds greatly to the effectiveness of the design.

Symbolic designs were revered by the early weavers. In Fig. 3 is shown a spread in which the design has been built around the Maltese Cross. This style is being woven in six colors with white. Here again the designer, M. L. Hanna of Louisville Textiles, Inc., has ingeniously produced the border pattern by a simple rearrangement of the draft for the body pattern.



The basic fabric in the colonial coverlets was constructed from cotton.

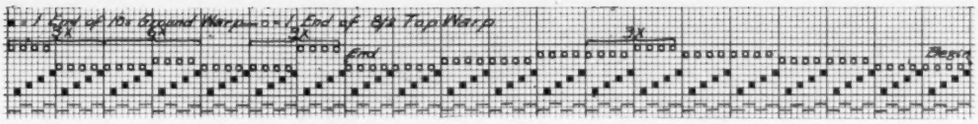


*Fig. 5. Drawing-in draft for The Parson's Fancy*

*Fig. 6. Dobby-chain draft for The Parson's Fancy*

The figure was developed from a coarse homespun woolen thread in one or several colors. In some cases the spreads were woven altogether from wool or entirely from cotton. The work was usually woven half width and two pieces were sewed together to form a spread of the total width required. The basic fabric was plain woven in white with the pattern developed by an extra system of filling or warp. More often the patterns were developed in extra filling, no doubt because it was more convenient for the weaver to insert the figuring threads by means of a number of shuttles than by using an extra warp, due to crude equipment for warp preparation.

The copies which are being produced on modern looms generally have the pattern developed in extra warp. The advantages of this method can readily be seen when it is understood that twice as many picks per inch are required to produce a given pattern in extra filling as are required to produce the pattern in extra warp. Neglecting other factors, it is thus possible practically to double the production by figuring through the use of an extra warp. Furthermore, it is not necessary to use a box motion, and weaving is simplified in that dobby and box chains do not get out of time.

The procedure of designing for a new coverlet pattern

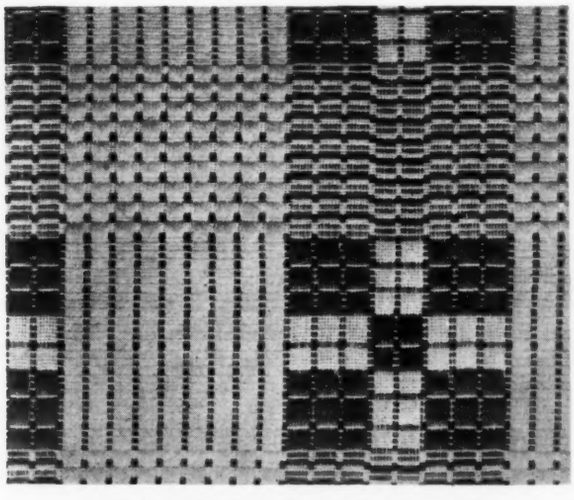


*Fig. 7. Three-color colonial coverlet woven at Clemson College*

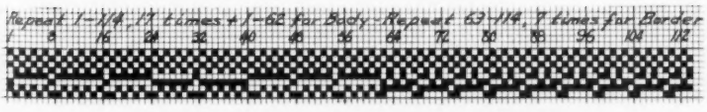


*Fig. 9. Dobby-chain draft for Fig. 7*

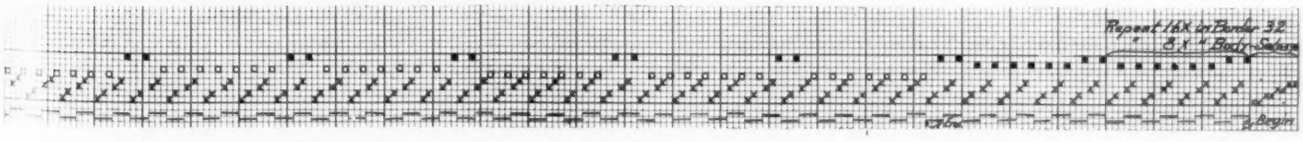


*Fig. 8. Drawing-in draft for Fig. 7*

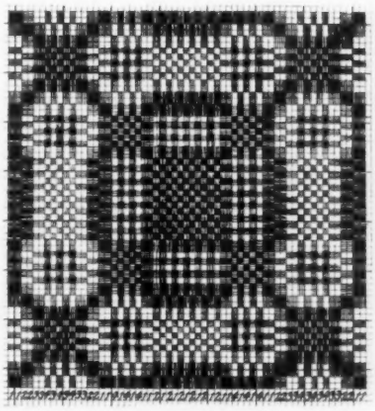


*Fig. 4. The Parson's Fancy*

begins with sketching to scale the design to be produced. This will ordinarily consist of a combination of blocks of varying size so arranged as to form an interesting geometric figure. In composing the design, it must be kept in mind that each change in the pattern will require an additional pattern harness. The number of changes in repeat must not exceed loom capacity.

At Fig. 4 is shown a sketch for a colonial coverlet. This pattern is a modification of the design originally known as "The Parson's Fancy." A study of this design will reveal four changes in white, black, and a third tone of gray formed by interweaving black and white. The harness- and dobby-chain drafts may be made directly from the sketch without developing the complete design. To determine the number of warp ends required in each change, it will be assumed that the pattern is to be woven in extra warp (10/2 soft-spun) on a ground fabric with 32 ends of 10s warp and 32 picks of 7s filling per inch. Each small square in the sketch is to appear $\frac{1}{8}$ in. wide in the fabric. Each unit square in the design will therefore represent one-eighth of 32 or four ends and picks in the fabric. The first change in the pattern shown at Fig. 4 will therefore cover eight ground ends. The second and third changes will require eight ground ends each, while the fourth will cover only four ground ends.

Fig. 5 shows the harness draft covering one complete repeat of the pattern. It will be observed that the arrangement of the ground and figuring warps is alternately one ground and one figure. Fig. 6 is the chain draft. The gray or half-tone squares are developed by intersecting the figuring warp in plain-weave order.

At Fig. 7 is shown a coverlet woven in cotton after an older design originally woven in wool and cotton. The fabric consists of a plain ground structure with 42 ends of 30/2 warp and 21 picks of 14/2 filling per inch. The pattern is developed in three colors from an extra warp from 12/2 soft-spun cotton yarn. The complete spread, 86 in. by 104 in., weighs 4 lb. Drawing-in and chain are shown at Figs. 8 and 9.

# *Cut-Presser Figures . . .*

## PROCEDURE FOR SPRING-NEEDLE DESIGN

***By J. Frederick Cahill***
*357 Fourth Ave., New York*

► *An experienced knitting consultant discusses in this article the calculations necessary in designing figures for cut-presser spring-needle work. He explains the factoring of the number of needles in the cylinder, the selection of a presser division. plus laps and minus laps, the effect of different numbers of feeds, and the laying out of the design on paper. Previous articles on circular-knitting design by Mr. Cahill appeared May 28, page 44, and July, page 70.*

IN TREATING the subject of figure designs, no distinction is made between the terms "pattern" and "design"; but the importance of presser divisions and the whole circumference of pressers and wheels in their relation to the number of needles in the cylinder are stressed. The controlling factor in original design or adaptation of designs is the number of needles in the cylinder and the facility with which it may be broken down to convenient divisions.

Assume a cylinder to have 1,176 needles; and, by factoring, proceed to find the greatest number of divisors that may go into 1,176 without a remainder, as follows: 1,176 ÷ 2 = 588 ÷ 3 = 196 ÷ 2 = 98 ÷ 2 = 49 ÷ 7 = 7. By this process it is found that 1,176 may be divided by 2, 3, 4 (2×2), 6 (2×3), 7, 8 (2×2×2), 12 (2×2×3), 14 (2×7), 21 (3×7), 24 (2×2×2×3), 28 (2×2×7), 42 (2×3×7), and 49 (7X7).

### *Design Divisions*

Any one of these divisors may be used as presser divisions or design divisions of needles; and it might be said that presser divisions and design divisions of needles are the means for prearranging the locations of needles that are to be prevented from drawing or knitting loops. As presser divisions are incorporated into the whole circumference of the presser, a number of them must be selected that will meet the requirements of the design in the matter of presser displacement for each revolution of the cylinder and yet be neither too large nor too small.

A presser of large diameter crowds the feeds and its point of contact with the needles is distant from the stitch burr. It appreciably increases the possibility of dropped stitches. A presser of too small diameter offers such a short arc of contact with the needles that difficulty is encountered in properly landing the stitch. Pressers ranging in diameter from 1¾ to 3½ in. meet most requirements, but occasionally it is necessary to go outside these dimensions.

The number of feeds on a machine is a factor in determining the diameter of a presser for two reasons: first, with a great number of feeds there is no room for large pressers; and second, with a great number of feeds large pressers are seldom or never needed. The latter reason is due to the fact that a number of needles representing one presser division is usually the width of the design or horizontal repeat, while the sum of divisions in all pressers (where cut pressers alternate with plain pressers) equals the number of tuck courses in the height of the design or vertical repeat or equals a multiple of such height. The greater the number of pressers, the fewer divisions per presser; hence smaller diameters are required. Where all feeds are equipped with cut pressers, the sum of the divisions in one-half the pressers equals the number of tuck courses in the height of the design or a multiple of it, as several vertical repeats may be incorporated in the pressers.

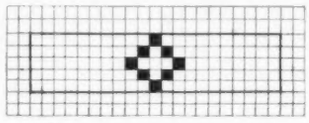


*Fig. 1. A design field with figure*

The selection of a number of needles to serve as a presser division is controlled very largely by the character of the design and the gage of the needles on which it is to be knitted. Twenty needles of 10-gage occupy a space of some 3 in., while twenty needles of 30-gage occupy only 1 in.

### *Arbitrary Selections First*

Assume that among the divisors of 1,176 needles, an arbitrary selection of the number 21 is made for the purpose of original design. This figure, then, is the presser division, and it is required to find how many divisions are needed to construct a presser that will meet the requirements of presser displacement (usually one division plus or minus) for each revolution of the cylinder.

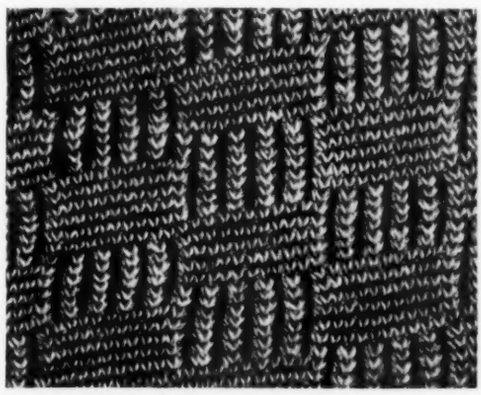
Presser displacement for each revolution is usually called "lap," and it will be so termed hereafter; but, "lap" must not be confused with presser division, as it may be one-half of one division, two or three divisions, or a number of odd needles.

In the middle gages of spring-needle machines, from 20-gage to 24-gage, a presser having five or six divisions of 21 needles would be between 2½ and 3 in. in

diameter. Selecting six divisions as a start, it is evident that the circumference of the presser must contain as many cuts as there are needles in six divisions of 21 needles each, or 126 cuts.

To find out to what extent 126 cuts meets the requirements for lap, the cylinder is divided by the presser, or 1,176 needles by 126 cuts. The calculation shows that 126 divides into 1,176 nine times with a remainder of 42; which indicates nine times the whole circumference of the presser with 42 needles remainder. This means a plus lap of two divisions of 21 needles or one presser division of 42 needles, as 42 is also a divisor of 126.

When the remainder in a division of the needles in the cylinder by the cuts in the presser equals one-half or less of the number of cuts in the presser, it is called a plus lap. If the remainder equals more than one-half of the presser, it is called a minus lap. Lap, however, is usually one division over or under an even division of the number of needles in the cylinder by the whole presser. With a plus lap the presser or pattern wheel gains or advances its position on the needles a distance equal to the number of needles comprising the lap for each revolution of the cylinder. With a minus lap the presser or pattern wheel, in each revolution of the cylinder, loses or retreats (apparently moves backward) from the position occupied in the preceding revolution a distance equal to the number of needles comprising the lap.



*Fabric design relying entirely on specific lap for effect*

A design of 21 needles horizontal repeat could very readily be incorporated into the division mentioned; but the fact that a presser with 126 cuts contains but three divisions of 42 cuts, instead of six divisions of 21 cuts, would tend to shorten the vertical design field. With two feeds and one cut presser, such a presser would produce but three tuck courses before having gained or advanced a sufficient number of divisions to make a vertical repeat, and to occupy the same set of needles on which it started. Irrespective of the number of pressers on a machine, the number of revolutions of the cylinder required to bring a plus or minus presser to a vertical repeat position is always equal to the number of divisions in one presser.

## *Other Divisions Tried*

As it is obvious, then, that six divisions of 21 cuts in a presser does not provide for a lap of 21 needles, other numbers of divisions may be tried and checked. As it may be that the design in mind requires a vertical repeat of a fairly large number of courses, it may be well to step up one division at a time in figuring.

Seven divisions gives $7\times21$, or 147 cuts. Then $1,176 \div 147 = 8$, with no remainder. This is good only for straight-line verticals, herringbone patterns, or such short vertical repeats as may be governed by the number of pressers rather than by the sum of the divisions.

Eight divisions gives $8\times21$, or 168 cuts. Then $1,176 \div 168 = 7$, with no remainder. The effect is the same as for a presser with seven divisions.

Nine divisions gives $9\times21$, or 189 cuts. Then $1,176 \div 189 = 6$, with 42 over. As 189 will not divide evenly by 42, but with a remainder of 21, it has interesting possibilities that will be touched upon later. As, excepting in the finer gages ranging from 18 to 24 needles per inch, a presser with 189 cuts would be rather large, it might be well to test the numbers of divisions below six and rely on the number of feeds to obtain the necessary height of design or vertical repeat.

Five divisions gives $5\times21$, or 105 cuts. Then $1,176 \div 105 = 11$, with a remainder of 21. This affords a plus lap of one division, which meets the requirements for building a design into the fabric by causing successive divisions in the pressers to operate upon each design division of needles in successive courses.

With a presser of five divisions, five revolutions of the cylinder are required to bring the presser again to the same design division of needles on which it started. Stated otherwise, a marked division of this presser would make its impression upon a marked design division of needles but once in five revolutions of a cylinder containing 1,176 needles, or any other number of needles into which it would divide with a remainder of 21 or 84. A plus lap is afforded by 21; and a minus lap, by 84.

This being the case, a design field for pressers of this description would be 21 needles wide, with its vertical repeat a multiple of five tuck courses. To demonstrate the truth of this statement, design paper having squares of any size or number per inch may be used—that which has no heavy lines for the 1-in. squares being best, as designs for knitting very seldom conform to the 1-in. squares and they are very apt to be confusing.

Select 21 squares near the middle of the sheet and draw vertical lines inclosing a column 21 squares wide. Each vertical line of squares represents a needle in the machine or a wale in the fabric. With a horizontal line, join the inclosing lines at the top, leaving the bottom of the column open. Inside the inclosure each horizontal line of squares represents a tuck or cut-presser course. The plain courses are ignored, because to consider them would double the vertical space required for the design. For two feeds, one cut-presser and one plain, five horizontal lines of squares comprise the design field for a five-division presser.

It has been explained that a five-division presser requires five revolutions of the cylinder to complete its cycle and return it to its starting position. Therefore, with but one such cut-presser a machine can make only five tuck courses in five revolutions.

Draw a horizontal line to inclose five rows of squares between it and the line at the top. The inclosed rectangle of 21 squares wide and five squares high, then, is the design field for one cut-presser having five divisions of 21 cuts each.

Because, on loop-wheel spring-needle knitting machines, the fabric moves upward as it is knitted and as it is viewed in that position on the machine (and from the back) with the last courses at the bottom, it is well, in laying out a design on paper, to build downward with the starting course at the top. The design then reads as a page of printed matter—with the difference, however, that sometimes the reading is from left to right and sometimes from right to left. It is well to know when

and how to transpose the design from one to the other.

Considering the line of squares at the top of the design field as the starting course and the courses following in the order of each succeeding course below the preceding one, it is evident that any manner of design laid out in the design field and transferred to the presser in corresponding cuts will be distributed over the entire fabric as the presser makes its contact with the needles. It is by this method that the prearrangement of locations for needles that are to be caused to knit or be prevented from knitting is brought about.

If the design consisted of a single tuck stitch, and a cut were made anywhere in the presser, ignoring divisions, that tuck would show on the fabric in vertical lines 21 wales apart and with four tuck courses or nine knit courses between any two tucks, counted vertically along the wale. It would be found, however, that each tuck stitch would lie in the second course below that occupied by its neighbor in the line to its left and two above that of its fellow to the right. This is due to the fact that operations are being carried on with a machine whose needles nearest the operator are moving toward the right hand and that a presser with a 21-needle plus lap is being used.

Though the presser is causing but one tuck stitch in every 105 needles along its course, the tucks are distributed in vertical lines every 21 wales, due to the plus lap causing a gain or advance by the presser of 21 needles for each revolution of the cylinder. The vertical lines consist of one tuck wale with 20 plain wales between, making 21 needles; while the horizontal lines consist of one tuck stitch and four tuck courses (though the tucks are at other locations) between, making five. Five courses multiplied by 21 needles gives 105, the number of cuts in the presser. It will be seen, also, that the number of squares in the design field totals 105.

It is evident from this that the space on the fabric between the vertical lines of tucks, including one line of tucks, is really a column of design fields as represented on the squared paper, each tuck forming one corner of a field. The design fields are waiting to be filled in with a design. It also shows that vertical repeats are possible in a straight line or column while horizontal repeats are not.

Suppose, then that the tuck stitches on the fabric, instead of forming one corner of the design fields, are assumed to occupy a position in the middle of the first course in each particular field. This would be represented by either completely filling in or placing an *X* in the middle square of the top row in the design field on paper (see Fig. 1).

If, then, two squares in the next row below were to be filled in or marked with an *X*, in one square on each side of the middle line an embryo design would be in the process of formation. Not only that, but the presser itself must now assume the character of having divisions.

About the simplest form of a figure design is a diamond, and the addition of the two marks in the second course tends to develop such a figure. In the process of transferring them to the presser, much depends on which division the cuts that represent them shall occupy. In a figure of this kind, this is not important except that it is evident they must occupy a division adjacent to the division occupied by the single cut. Whether to its right or left as viewed from the top of the presser in its working position on the machine is not at all important in this case, excepting the fact that a knowledge of what will occur in the fabric as a result of the placement of cuts in the presser is of great benefit to the knitter.

If, however, counting 21 cuts to the right and locating the middle needle in the division to the right of the single cut, the two deep cuts were made, one on each side of the middle, the result in this particular design would be the same as if the counting had been done in the opposite direction. This will be made evident by completing the design on the paper before making any more cuts in the presser.

Consider the line of squares at the top of the design field as the first course in the design and as division number one in the presser. As the fabric will move upward as it is knitted and the design is being built downward, the second line from the top becomes the second course in the design and the second division in the presser; the third line down, the third course in the design and the third division in the presser; and so on to the end.

When the design is completed on the paper, it is seen that courses one and five are the same, a single tuck stitch. Two and four are the same with two tuck stitches each, one on each side of the middle line. Course three has two tuck stitches more widely separated, one in each second vertical line outside the middle line.

The needles in the machine moving toward the right and the presser having a plus lap, it is evident that the presser divisions must read to the left as 5–4–3–2–1, because No. 2 follows No. 1 in the succeeding course on the same set of 21 needles, presser division No. 1 having moved to the right in its gain of 21 needles due to one revolution of the cylinder and a plus lap.

Course No. 3 with its more widely separated two tuck stitches would be printed by presser division No. 3 on the same set of needles, while presser division No. 1 will have printed its single tuck stitch in a location that is two design divisions ahead of that on which it started, and presser division No. 2 will have printed its two tuck stitches in the design division immediately ahead of that occupied by presser division No. 3. This procedure continues for a complete cycle, in which all divisions of a presser or wheel make their impression in succession on each design division of needles.

As the presser advances or retreats on the needles in each revolution of the cylinder, according as the lap is plus or minus, each presser division will make its imprint on the needles in each design division on a course that is later than the course it printed in the preceding design division.

The number of tuck courses later—or, in this case, lower—is always equal to one-half the number of feeds on the machine, whether cut pressers are used on all feeds or whether they alternate with plain feeds.

At this time it is desirable to make a correction in the article "Cut-Presser Diagonals," which appeared in July. The paragraph beginning at the bottom of the left-hand column on page 71 should be changed to read as follows: With 1,001 needles and with a presser 100 needles in circumference, the slant would be upward to the left on the outside as viewed on the machine; while on the inside, the face of the fabric, the diagonals would slant upward to the right. With 999 needles the same presser would produce a slant upward to the right on the outside or back of the fabric, while on the inside or face the slant would be upward to the left.

•

*In the next article of this series, to appear in an early issue, the effect of the number of feeds on the positions of figures in their relation to each other laterally in the fabric will be illustrated.*

# *Underwear Knitters*

## REORGANIZE UNDER NEW NAME

*Roy A. Cheney, Secretary*

PLANS for the launching of a new associational movement which, it is expected, will do much to improve production and merchandising conditions in the knitted underwear industry, were promulgated at a meeting of 62 underwear manufacturers at the Commodore Hotel, New York, Jan. 17. The program adopted at this meeting, and which is now in process of fulfilment, provided for a complete reorganization and re-christening of the Associated Knit Underwear Manufacturers of America. The purpose behind this action is to apply to the entire underwear industry, the production and selling policy adopted several years ago by the ribbed underwear division of the association. This policy, which has proved signally successful in building profits for the heavyweight group, was described first in TEXTILE WORLD, Oct. 31, 1931.

The main points of the plan are: spiking of false price-cut rumors, dissemination of accurate stock and demand information to discourage overproduction, minimizing of special concessions, and distribution to manufacturers of true cost figures permitting them to anticipate beforehand the financial results of a price cut. Helpful from the start, this program has been steadily expanded among ribbed underwear knitters during the last eighteen months, with the result that today numerous if not the majority of these mills are in a healthy position.

The four main points in the reorganization are: (1) Extension of the stability policy to all divisions. (2) Change of name; association to be known as American Knitwear Manufacturers Association. (3) Transfer of association headquarters from Utica, N. Y., to Belton, S. C. (4) Election of a complete new staff of officers and executive committee.

The new officers are: president—E. J. McMillan, president, Standard Knitting Mills, Knoxville, Tenn.; vice-president—George Rutledge, president, Munsingwear Corp., Minneapolis; treasurer—O. W. Gridley, Utica (N. Y.) Knitting Co.; secretary—Mr. Cheney.

The gathering was the first convention of the underwear industry in three years, and it marked the retirement of Frank B. Harder, president, High Rock Knitting Co., who had been president of the association during that period. Mr. Harder, one of the outstanding figures in the underwear industry, and long a leader in associational work, was largely instrumental in getting the industry to adopt the "part wool" label regulations. Mr. McMillan, the new president, heads one of the largest ribbed underwear companies in the country. His work as a leader in the heavyweight division has attracted wide attention in the trade during the last two years. He is 43 years old and has been long in the industry.

The new executive committee which functions as a board of directors comprises: Horace Carter, William Carter Co., Needham Heights, Mass.; L. U. Lynt, Little Falls Mfg. Co,. Little Falls, N. Y.; R. E. Devereux, Oneita Knitting Mills, Utica, N. Y.; P. H. Hanes, Hanes Knitting Co., Winston-Salem, N. C.; Benjamin Gibbs, Cheltenham Knitting Co., Philadelphia; B. C. Russell, Russell Mfg. Co., Alexander City, Ala.; Walter Powell, Amazon Knitting Co., Muskegon, Mich.; William D. Mahoney, Faith Knitting Co., Averill Park, N. Y.; Sherman P. Haight, E. Z. Mills, Hoosick Falls, N. Y. and F. H. O'Hara, Norwich (N. Y.) Knitting Co.

Divisions of the industry are represented in groups with chairmen as follows: retail—Mr. Rutledge, chairman, and Charles Pillsbury, Munsingwear Corp.; fleeces and sweaters—Mr. Gridley; flat knit lightweights—John Shea, Oneita Knitting Mills; heavyweights—Mr. McMillan; wools—Mr. Mahoney; with children's and boys' wear in charge of Mr. Powell.

At the New York meeting which was an executive session, heavyweight manufacturers spoke enthusiastically of the price and stock stability plan; several announced that their books would show surprisingly good profits for 1932 which they attributed entirely to the work of the ribbed underwear division of the association. The ribbed underwear manufacturers, indeed, are now one of the strongest groups in the knit goods field.

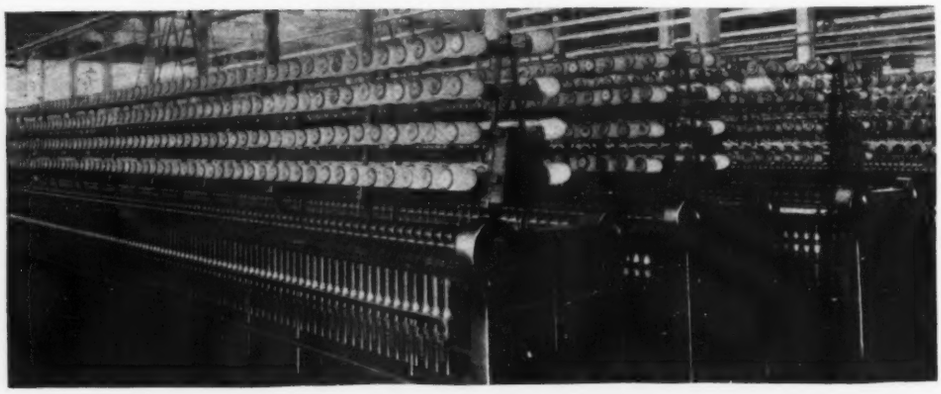
Explaining the reorganization, Mr. Cheney said the transfer of headquarters to the South was in line with the geographical trend of the industry. Belton, he pointed out, is centrally located, permitting quick and economical travel to the various centers. The reason for the change of name was that the old title was too long and cumbersome, he added. This is the second time the association has re-christened itself. Prior to 1915 it was known as the Knit Goods Manufacturers of America.

Discussing the point that this was the association's first election in three years, Mr. McMillan in an address at the meeting asserted that the trend among underwear manufacturers during the depression was to concentrate more completely on constructive work among themselves, which they found was more effective in group sessions.

Manufacturers of medium and lightweight garments who attended the meeting were much impressed by the statements of heavyweight knitters regarding their improved position, and expressed confidence that the reorganization and change of policy would be of great benefit to the other groups as well during 1933.

# METHOD AND TOOLS FOR REMOVING *Twister Cylinders*

*By L. L. Kingsford*



◆ *Production is lost when broken cylinders must be repaired. The magnitude of the loss depends upon how expeditiously the repairmen work. The accompanying article describes an efficient method developed particularly for removing the cylinders of wet twisters. It is also a time-saver, however, in the repair of spinning-frame cylinders.*

A BROKEN cylinder always means the stoppage of a frame. The duration of this stoppage usually depends upon the ingenuity and skill of the section-hand or mill mechanic who is responsible for repairs to the machinery. Defective or broken cylinders on wet twisters are often particularly difficult to remove on account of the effects of corrosion on the cylinder head and on the connecting shaft to which the head is fastened. The corrosion "freezes" the two parts together, so that the job of removing the cylinder is one of considerable magnitude.

For convenience of illustration, let it be assumed that the gear-end cylinder of a triple-section-cylinder, 336-spindle frame is to be removed. This particular cylinder is selected as an example because on certain types of twisting machines it is the one which usually gives the least trouble during the process of removal—unless, of course, it is "frozen" to its shaft. It is expressly to handle just such difficult situations that the technique described in this article has been developed. Ignorance of its principles often results in the deliberate smashing of two cylinders before the damaged one can be removed from the frame.

## *Preliminary Steps*

The section-hand and three helpers—recruited from the cleaners, doffers, or scrubbers—will expedite the work on the cylinder. One or two of the helpers should be detailed to remove the bobbins from the spindles on that part of the twister where the broken or defective cylinder is located. Obviously, everyone handling the bobbins should be thoroughly impressed with the fact that the yarn on them must not be soiled; for a combination of mineral oil, rust, grease, and dirt cannot be removed entirely in the dyeing or bleaching and will subsequently leave stains. Waste or towel wipers, therefore, should be placed within reach on a cylinder job.

While the bobbins are being removed, one of the other helpers can slip off the bands or tapes from the spindles, assembling them in a neat bundle and tying them to the rod under the centerboard of the frame. During this time, the section-hand will remove the pulleys on the end of the cylinder, loosen the cylinder bearing which is attached to the samson at the end of the frame, and remove the screws from the cap of the center bearing *cb* shown in the accompanying diagram. As the space between this cap and the centerboard is rather small, a good tool for working effectively in the limited area is the T-handled screw-driver *E*.

The setscrews *SS* in the defective cylinder *D*, and also in the contiguous cylinder *C*, should be loosened by a T-handled socket-wrench *F* of sufficient length so that when the socket is engaging the setscrew in the cylinder, the T-handle will project outside the line of spindles.

The reason for loosening the setscrews in both cylinders is that occasionally the connecting shaft, shown by the dotted lines *SH*, will become so firmly rusted to one of the two cylinders that to move that particular cylinder is an exceedingly difficult problem. But there is the possibility of only one end being frozen, so that by loosening both setscrews the removal of the cylinder will not be seriously retarded.

## *Disadvantages of Old Methods*

The big problem is to bring about a separation of the defective cylinder *D* from its connection with the cylinder *C* next in line to it. Now let it be assumed that both setscrews *SS* have been loosened but that "freezing" of the shaft *SH* to both cylinder heads *CH* precludes any movement of the cylinder *D*.

To illustrate the superiority of the new method in the foregoing situation, some of the older methods will be enumerated briefly. One old standby is the crowbar. The curved end of the bar is placed at the cylinder and the middle of the bar pressed against a samson of the frame, if one is located there. Sometimes a second bar is used on the other side of the machine. However, on

those frames where the stand which supports the center bearing *cb* is rather fragile, even a small application of force will snap it to pieces. To obviate this difficulty four bars may be brought into play, two on each side of the frame, and placed in such a manner that a decided leverage can be obtained by pushing the bars together on each side of the machine.

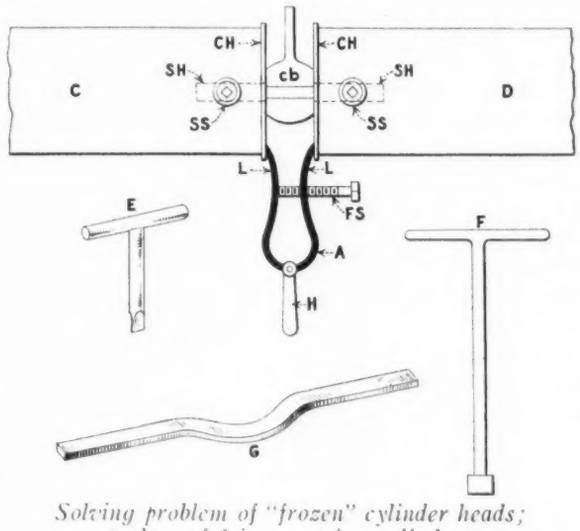
Secondly, there is the wedge method. The wedges, of hard wood or steel, are of various thicknesses, several being tapered, and are fitted into the space between the cylinders and on both sides of the cylinders. Two persons pound in the wedges by means of hammers, the in-going movement resulting in a gradual widening of the gap between the cylinders.

The trouble with both of these methods, and the variations of them that are resorted to in the mill, is that the pressure is not sufficient, nor can it be applied with uniformity by the men on each side of the frame. Consequently, despite the efforts of the men to act in unison, there will be greater pressure on one side than on the other, thus forcing the cylinder out of a straight line. Slight though this deviation may be, it is nevertheless sufficient to cause a binding strain to take place between the cylinder head and the connecting shaft, frustrating any further attempt to move the cylinder. After considerable loss of time in fruitless endeavors to get it to slide, the cylinder usually is smashed off near the center bearing with hammers. Not infrequently, due to inability to get out the connecting shaft, both cylinders *C* and *D* may have to be broken off. Such a course obviously entails a further loss of production and additional cost for repairs.

## *A Useful Device*

To eliminate the objectionable features of the usual methods of cylinder removal, and to expedite this operation, thereby saving both time and money, the device *A* was made a part of the technique of cylinder removal. The idea is not new, but merely its application to cylinders; for it is simply the old principle of work done by a screw. It consists of two legs *L*, pivoted together as shown near the handle *H*, with a forcing-screw *FS* fitted to one of the legs. This forcing screw pushes the legs apart and this causes one of the two cylinders to move. The legs are of wrought iron or steel.

For want of a better name, the instrument might be called a spreader. It must be understood, of course, that the type shown in the illustration is only one variation of the device. It is remarkably flexible in adaptation, since the legs can be shaped into the form most suitable for the kind of cylinders upon which the work is to be done.




*Solving problem of "frozen" cylinder heads; tools useful in removing cylinders*

For example, when the space between the cylinders is small, it is advisable to make the ends of the legs thin enough to permit proper insertion. The handle *H* is not a necessity—in fact, on some frames it would be in the way—and therefore it can be dispensed with if occasion requires. The legs *L* are pivoted as shown, near the handle; and to derive the full possibilities of the spreader, the pivot bolt should be easily removable, so that each leg can be put into the space between the cylinders separately and the bolt inserted after the legs are in position. The legs can be made with greater or less curvature and the ends shaped to meet the requirements of the type of cylinder head. It is assumed, in the diagram, that the cylinder heads are of iron and that the ends of the legs can press against the edges without damage to the heads.

## *Use of the Spreader*

Two of these spreaders, one on each side of the frame, are necessary for a tough cylinder-removal job. It is important that no section-hand or mill mechanic attempt to work the instrument from his side of the frame alone unless he is certain from a preliminary trial that the cylinder will move quite readily. Otherwise the excessive pressure that can be exerted by the spreader will bring about the binding effect and sprung shaft which has already been shown are unavoidable with the older methods of dealing with cylinders, even when there is a worker on each side of the frame.

Each person operating a spreader should have a heavy 9- or 10-in. S-wrench with which to turn the forcing screw *FS*. When an especially stubborn cylinder is encountered, it should be turned occasionally, so that the ends of the legs of the spreader may be brought into contact with different places on the cylinder heads from time to time, thus reducing the possibility of damage to the heads.

Since the cylinder requires a certain amount of space before it is free from the connecting shaft *SH*, it is necessary to remove the bearing on the pulley-end samson. The bearing should be put loosely on the outside of the samson so that it will serve to maintain the cylinder in a straight line. However, at that part of the cylinder near the center-bearing there will be no support for the cylinder *D* once it leaves the shaft *SH*. Accordingly, some provision must be made for holding up the cylinder. Usually this is accomplished either by pushing a crowbar or a long screwdriver under the cylinder.

These methods of supporting the cylinder are not so productive of good results as a specially designed strip of wrought-iron flat stock, as shown at *G*, for example. This strip is ½ in. thick by 2 in. wide. It can be shaped so that it will slip under the cylinder and have its ends resting on the spindle rails on both sides of the frame. An ideal support is thus obtained for the cylinder; and with the cylinder supported in this way the business of removing it can proceed to completion.

Only in rare cases will a cylinder be found that cannot be satisfactorily removed by means of the tools described in the foregoing outline. Although this technique was developed primarily for the exceptionally difficult problems that some wet twisters present, it will be found a time-saver in the removal of spinning-frame cylinders also, which, though they are ordinarily easy to get moving, can be much more readily handled with the spreaders and the cylinder supports.

## DEPARTMENTAL ANALYSIS EFFECTS ECONOMIES IN

# *Winding Silk and Rayon*

*By Otto Bitzenhofer*

◆ *Critical analysis of the three factors—men, machines, and materials—in the winding department of one of the largest silk and rayon mills in Germany enabled the management to institute reforms which resulted in noteworthy economies. It is believed that many of our readers will be interested in the methods followed in this investigation, as they can be adapted readily to the conditions encountered in this country.*

IN order to obtain the highest possible efficiency in winding silk and rayon crepe filling, one of the largest and most modern mills in Europe undertook a critical analysis of all factors entering into this operation. The result of this investigation was an increase in efficiency of 25.9%. At the same time, piece rates were reduced approximately 18%, but the total pay received by the winding girls was increased.

The investigation was divided into the following major stages: (1) a short pre-test to determine the time required by a spindle to produce a quill; (2) examination of the winding machine to determine its speed and condition; (3) tests of the material; and (4) work and time studies to determine the manual skill of the operatives. This analysis proved that the department was not operating at its highest possible efficiency; and reforms were instituted, therefore, with the results stated in the preceding paragraph.

### *Machinery Adjustments*

The winders were of the type having a friction drive for each spindle; and the pre-test showed that each spindle required a different length of time to produce a full quill. It was found, further, that on this type of machine a quill of normal size can be produced in 9.2 min., and a quill of larger size (for four-loom work) can be produced in 13.5 min.

The next step was to examine each machine, and then to make the necessary repairs and adjustments in order that each spindle would give as nearly as possible the maximum production. This equalization of spindle speeds brought about an increase in production of 18.2% for the department.

Tests were made of the silk before and after winding to determine the tensile strength, elongation, and manufacturing qualities. The maximum speed of the drive shaft of the winders was found to be 1400 r.p.m., which corresponds to a spindle speed on these machines of 3500 to 4000 r.p.m. It was proved by the tests of the material that there is no excessive impairment of the silk crepe when wound either on normal or large-sized quills at the maximum speed of the winder.

The chief duties of the winder girls are to change quills, repair thread breaks, and to change bobbins. In Table I are shown the results of a study to determine the skill and ability of these operatives. The figures given in the table, it should be stated, are the averages of twelve 1-hr. studies. It can be seen, for example, that in 1-hr. operative *A* makes 184 changes of quills, repairs 10 thread breaks, and makes 10 changes of bobbins. The last column gives the rating of the six operatives; and serves as a basis for judging the efficiency of the girls. Operative *A* is given the rating of a good-average winding girl. Operative *B* has the highest rating; operative *C* has the lowest rating.

In these tests each operative served 40 spindles. With this number of spindles, some are constantly out of operation even with the most efficient girl. It was found, however, that 30 spindles can be served easily; and that the most favorable number is between 30 and 40, the exact number depending on the ability of the operative.

In order to determine the exact number of spindles which a girl of good-average ability can serve most efficiently, operative *A* was given the following test: First she places 19 full bobbins on her machine. These bobbins, as well as all additional material which she obtains during the test, are weighed. At the end of 5 hr. the ma-

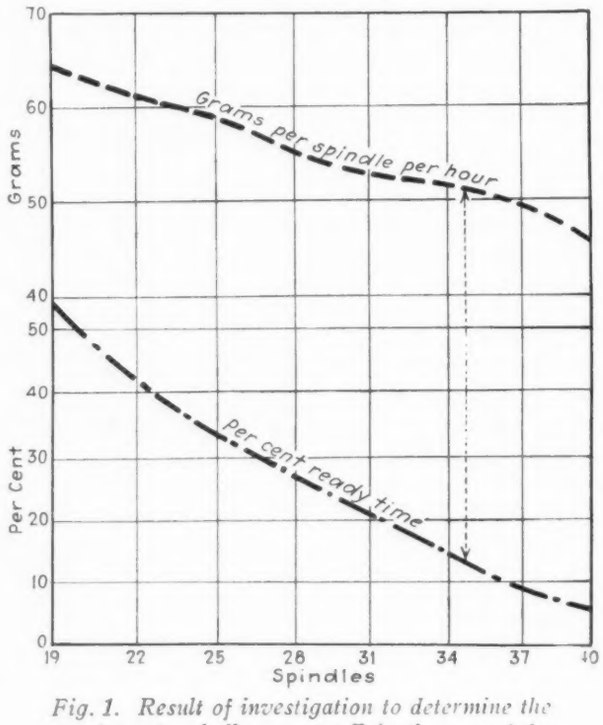



*Fig. 1. Result of investigation to determine the number of spindles most efficiently served by operative winding quills of normal size*

chine is stopped, the unused material weighed, and the amount of silk wound in 5 hr. with 19 spindles being served is determined by subtraction. The test is repeated with the girl serving 22, 25, 28, 31, 34, 35, 37, 38, and 40 spindles. For purposes of comparison the quantities of silk wound are calculated to the amount wound per hour by the total number of spindles served, and also to the amount wound per hour by one spindle. Table II gives results on quills of both normal and large size.

The winding girl requires some recreation intervals—called "ready times" in the table. If possible these ready times should occur when all spindles are running. The study showed that normally the ready times may amount to 12 to 15% of the total time; but with 40 spindles running they will account for only a small percentage of the total time.

## *Highest Efficiency*

It will be noted from Table II that when the number of spindles served is increased beyond a certain point the work accomplished per spindle is reduced, although the total quantity wound is increased up to about 40 spindles. Also, it will be seen that the ready time, as well as the work per spindle-hour, increases with a reduction in the number of spindles served.

In Figs. 1 and 2 are shown graphically the numbers of spindles which can be served most efficiently. The most favorable point is at that place where the curves for performance per spindle and for percentage of ready time are the greatest distance apart. That is, in the case of quills of normal size the most efficient operation corresponds to a production of 51 grams per spindle-hour with 35 spindles being served; with large quills (which hold 40% more silk) for four-loom work, the most efficient operation corresponds to a production of 70 grams per spindle-hour with 38 spindles being served. The total production per hour is 1785 grams with normal-sized quills, and 2660 grams with large quills.

The final step is to assign to each operative the number of spindles which can be served most efficiently; and in the case of the girls whose rating is below that of good-average, to give them the necessary instruction to enable them to bring their work to par.

**TABLE I. Results of tests to ascertain skill and ability of operatives**

| Winder | Spindles Served | Change of quills: Average time in 100th min. | Change of quills: No. | Thread Breaks: Average time in 100th min. | Thread Breaks: No. | Change of Bobbins: Average time in 100th min. | Change of Bobbins: No. | Value of Performance | Rating of Operative |
|---|---|---|---|---|---|---|---|---|---|
| A | 40 | 6.1 | 184 | 12.0 | 10 | 18.5 | 16 | 36.6 | 3 |
| B | 40 | 5.4 | 192 | 9.0 | 17 | 16.7 | 17 | 31.1 | 1 |
| C | 40 | 7.1 | 160 | 13.4 | 18 | 22.1 | 14 | 42.6 | 6 |
| D | 40 | 5.8 | 186 | 11.9 | 18 | 17.3 | 16 | 35.0 | 2 |
| E | 40 | 6.8 | 170 | 14.4 | 11 | 19.6 | 14 | 40.8 | 5 |
| F | 40 | 5.9 | 176 | 12.9 | 14 | 20.8 | 15 | 39.6 | 4 |

**TABLE II. Results of tests to determine amount of silk crepe wound under various conditions**

| Spindles served | Large-sized Quills | Normal-sized Quills |
|---|---|---|
| 19 spindles in 1 hr. | 1,750 grams | 1,234 grams |
| Wound per spindle-hour | 92 grams | 65 grams |
| Ready-time | 57% | 54% |
| 22 spindles in 1 hr. | 1,900 grams | 1,363 grams |
| Wound per spindle-hour | 86.4 grams | 62 grams |
| Ready-time | 47.4% | 41.7% |
| 25 spindles in 1 hr. | 2,050 grams | 1,475 grams |
| Wound per spindle-hour | 82 grams | 59 grams |
| Ready-time | 40.3% | 34.2% |
| 28 spindles in 1 hr. | 2,210 grams | 1,540 grams |
| Wound per spindle-hour | 79 grams | 55 grams |
| Ready-time | 29.7% | 27% |
| 31 spindles in 1 hr. | 2,370 grams | 1,550 grams |
| Wound per spindle-hour | 76.5 grams | 53 grams |
| Ready-time | 22.5% | 20.4% |
| 34 spindles in 1 hr. | 2,570 grams | 1,750 grams |
| Wound per spindle-hour | 74 grams | 51.5 grams |
| Ready-time | 17.1% | 14.8% |
| 35 spindles in 1 hr. | ..... | 1,785 grams |
| Wound per spindle-hour | ..... | 51 grams |
| Ready-time | ..... | 11.5% |
| 37 spindles in 1 hr. | 2,620 grams | 1,850 grams |
| Wound per spindle-hour | 70.8 grams | 50 grams |
| Ready-time | 13.8% | 8.5% |
| 38 spindles in 1 hr. | 2,660 grams | ..... |
| Wound per spindle-hour | 70 grams | ..... |
| Ready-time | 12.6% | ..... |
| 40 spindles in 1 hr. | 2,630 grams | 1,800 grams |
| Wound per spindle-hour | 65.8 grams | 45 grams |
| Ready-time | 10.2% | 4.5% |

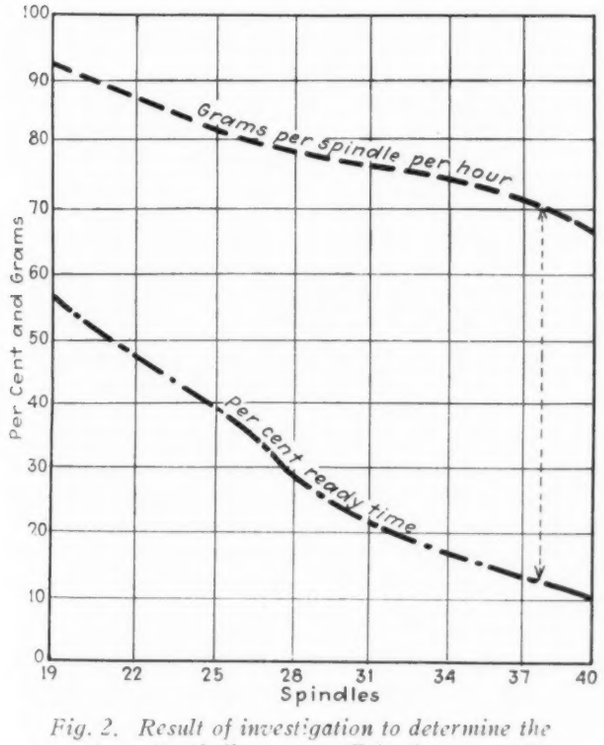



*Fig. 2. Result of investigation to determine the number of spindles most efficiently served by operative winding large-sized quills*

At the end of this investigation records were kept for a two-week period to determine the actual amount of silk wound. For quills of normal size this was found to average 1775 grams per hour per operative, as compared with the 1785 grams per hour wound during the test by the girl of good-average rating. Records kept for a six-weeks period before the investigation was started gave an average of 1410 grams per hour. There was obtained therefore an increase in production of 365 grams per hour per operative, which corresponds to a gain of 25.9%. Piece rates were reduced 18.2% to compensate for the increase in production which followed the repairs and adjustment of the machines. Despite this adjustment of piece rates, the winding girls receive a higher total pay per week than they did under the old system.

Similar analyses were made of the winding of all other materials used by this mill. It is interesting to note that in the case of rayon crepe, a somewhat lower drive shaft speed (1100 r.p.m.) and a correspondingly lower spindle speed were found most suitable. When winding at this lower speed, even 40 spindles is rather too few a number for one operative to serve, as she is occupied only about 75% of her time.

# *Warp-Backed Cloths...*

## AND HOW THEY COMPARE WITH FILLING-BACKED

*By R. A. C. Scott*

**Comparison of Backing Methods**

| Extra Filling | Extra Warp |
|---|---|
| Usually one warp beam necessary | One beam seldom practical. Generally two or more required |
| Minimum number of harnesses required for fancy effects | Greater number of harnesses required for similar effects |
| Comparative simplicity in drafting | Drafting much more complicated |
| Box loom required, involving slower speed of loom | Automatic loom; therefore higher speed and more production |
| High pickage per inch, reducing cloth production | Lower pickage per inch, giving maximum production |
| Inferior yarn may be used for backing | Good yarn must be used for backing |
| Imperfect selvages (formation of loops) | Perfect selvages |

*The chief recommendation for extra warp is the possibility of increased production.*

◆ *And now, having completed his discussion of filling-backed cloths, Mr. Scott takes up the warp-backed variety in some detail. Previous articles of this enlightening series on designing backed, double, and treble cloths appeared in the June, August, and September issues.*

CLOTHS backed with warp require two series of warp threads to one series of filling threads. By this arrangement considerable saving in production costs can be effected, as compared with the filling-backed principle. Again this method of backing not only allows of increased weight, but also permits the formation of fancy stripe patterns on the underside of the cloth.

Owing to the greater strain in weaving, however, the backing yarns must be stronger, and, as a rule, better-quality products. Due to the necessity of more complicated methods of drafting, a greater number of harnesses is needed to produce similar effects. As in the filling-backed structures, the standard arrangements are: one face to one back, two face to one back, and three face to one back.

If the principle of backing with filling discussed in previous articles be thoroughly understood, little need be said about the fabrics backed with warp. The chief difference between the two types is that face picks cover back picks in filling-backed cloths, whereas face threads cover back threads in fabrics backed with warp.

In discussing filling-backed cloths, it was considered more convenient to indicate filling up; and similarly, marks in the accompanying designs illustrating warp-backed weaves will indicate warp up. In fact if the foregoing illustrations of filling-backed designs are turned one quarter round, and the marks are taken to indicate warp, warp-backed effects will be represented.

Fig. 30 shows the four-end sateen or broken crow on both sides arranged one face to one back, the black marks representing the face and, as before, the lightly shaded parts indicating the backing ends, with the stitching shown by the crosses. The corresponding flat view is represented at Fig. 30a, with a diagram showing how the first two ends interlace at Fig. 30b. It will be further noted that this will produce a reversible cloth which is therefore adaptable to different color schemes on back and face. In this case, different colors might be used in the warp pattern in one-and-one order. The same color effect would be applied to Fig. 31, which is the ordinary crow weave on each side, except that the direction of twill on the under side would be opposite to that on the face when turned over.

It is the general custom to place the backing yarns on a separate beam to allow for independent tensioning which the difference in firmness of weaves used in forming the two sides of the cloth necessitates. However, in cases where the face and back yarns are similar in size and quality, and where the weaves are of equal firmness, all the threads may be placed on one beam. The use of the design indicated at Fig. 32—which is the two-up, two-down twill face and crow back—along with suitable yarns for back and face, would be quite a practical and satisfactory weaving job if placed on one beam.

There are two methods in practice for drafting warp-backed designs, as follows:

1. Straight over, as shown at Fig. 32b, which is the draft for the design at Fig. 32, and the corresponding pegging plan given at Fig. 32a.

2. Skip-shaft methods, as illustrated at Figs. 33b, 34b, and 35b. This system of drafting, it may be stated, is on the whole more generally practiced for the reason that usually there is (a) a difference in thickness or quality between the face and backing yarns; (b) a difference in pattern arrangements on each side of the cloth, when special drafting is necessary for the face, or (c) a weaker and inferior-quality yarn in the backing, making it advisable to place in front the heddles through which this yarn has been drawn.

Therefore, owing to the difference in firmness of weaves used on each side, the designs indicated at Figs. 33, 34, and 35 should not only have separate beams for each series of threads, but as a further aid to better weaving, the skip-shaft order of drafting should be employed, placing heddles for the weaker yarn in front.

Fig. 33 is a two-up, two-down twill face with sateen order of stitching arranged one face to one back. The pegging plan is shown in Fig. 33a, with black marks representing face weave and crosses indicating back weave. The drafting arrangement is shown at Fig. 33b.

Fig. 34 is a two-up, two-down twill face with one-up, seven-down, move-two twill order of stitching arranged two face to one back. Fig. 34*a* is the pegging plan; and Fig. 34*b*, the drafting arrangement. It will be noted that both the design and draft commence with one face end instead of two. This is in order that the backing ends may be dented in the reed with a face end on each side, such as three or six in a dent.

Fig. 35 is a broken six-harness weave on the face and plain order of stitching on the back, arranged three face to one back. Figs. 35a and 35b show pegging and draft.

Although examples have been given in the case of both filling- and warp-backed cloths of the two-face-to-one-back and three-face-to-one-back arrangements, it may be well to point out that these are not so satisfactory as the more common order of one face to one back. In the case of the former arrangements, it is necessary to use a thicker and coarser yarn for backing, which invariably produces a raw, open texture on the under side of the cloth and incidentally impairs the selling value.

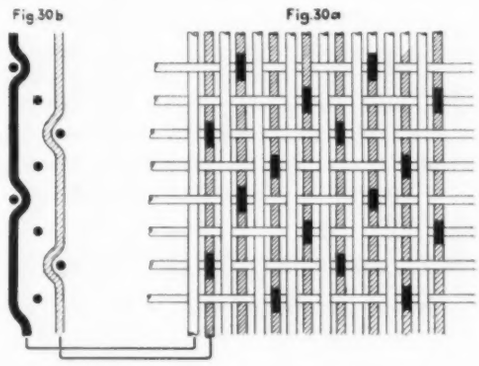
In Figs. 36, 36a, and 36b, the method of arranging the ties and of constructing the draft and plan direct from the face plan is illustrated. Fig. 36 is a combination of the basket and twilled hopsack weaves as shaded, and the black marks represent the best stitching points. The pegging plan is indicated at Fig. 36a with crosses representing the black marks or stitching points in Fig. 36 and the shaded parts corresponding to the face weave. Fig. 36b illustrates the draft, which is of the skip-shaft order arranged one face to one back and numbered to correspond to the plan.

The same face design (dice crow) has been used at Figs. 37 and 38 in order to illustrate the advantages of using different orders of warp backing. In the former, a one-and-one order is shown, in which the fourth and eighth backing ends can be covered on only one side by a warp float. However, by using the two-face-to-one-back order of backing the design, this defect can be avoided through placing the ties as indicated at Fig. 38.

Space does not admit of further examples in explanations of this method of modifying the arrangement to suit irregular formations of weaves, or those weaves that have certain threads which cut with each other, but the examples given illustrate the possibilities which this method affords the designer in providing fancy weave effects on the face of the cloth.

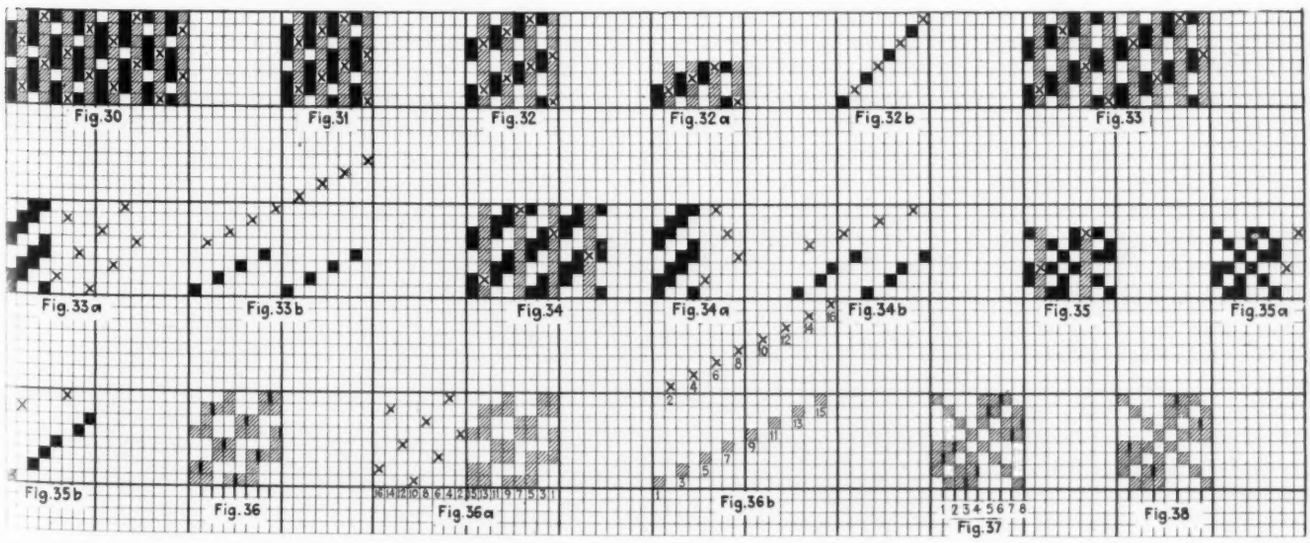
In both warp- and filling-backed cloths, where there are two or three face threads to each backing thread, it is the general custom to use a thicker and poorer quality of yarn for the backing than for the face. In the case of the two-face-to-one-back arrangement, the count of the backing yarn should be approximately two-thirds that of the face yarn; and with the three-face-to-one-back arrangement, the count of the backing yarn may be one-half that of the face yarn.

Again the ends or picks (according to whether we are considering warp or filling back) per unit space on the face should be fewer than obtains in a well-built similar single cloth, especially in the case of the one-and-one order of backing. For instance, a two-up, two-down twill single worsted cloth made with 2/36s warp and single 18s filling with 56 ends and 56 picks should have, in the one-and-one order of backing, about 56 ends and 100 to 104 picks if filling-backed, and 100 to 104 ends and 56




picks if warp-backed. For another illustration, Fig. 34 might be woven in a woolen cloth using 4½-run woolen face warp, 3-run woolen backing warp, 9½ dents per inch with six ends per dent, and 4½-run woolen filling with 38 picks per inch.

In summarizing the foregoing, it will be quite obvious that fancy effects and designs by means of either the extra warp or extra filling afford unlimited scope for the development of patterns. Furthermore, by combining both systems, greater and more extensive possibilities are facilitated; but, as the accompanying tabular comparison of the two systems will show, such a combination involves many practical difficulties.



# *Wholesalers and Retailers*

EFFORT toward closer cooperation between the textile manufacturer and the distributor of his merchandise will be a paramount concern among wholesalers and retailers during the current year. This was made strikingly evident at the annual conventions of the two major distributor organizations—the National Retail Dry Goods Association, and the Wholesale Dry Goods Institute—which were held in New York during the third week of January.

Addresses by leading textile men, representing various major divisions of the industry, had prominent place in the programs of both conventions, and the result was an interchange of ideas that promises well for improved relations between manufacturer and distributor in 1933. The chief points stressed by the spokesmen for the textile industry, in brief summary, were: Futility of quality promotion, so-called, unless the merchandise is authentically high-grade; need of distributors buying, as far as possible, with the idea of selling to a specific market; the need for buying ahead and for moderation of price pressure; and—last but not least—the advisability of having distributors' representatives make more frequent addresses at the gatherings of the different textile divisions.

### *Wholesalers Get Mill Viewpoint*

Of the two conventions, that of the Wholesale Dry Goods Institute, held at the Governor Clinton Hotel, was perhaps the more significant to the textile industry. The institute devoted practically one-half of its entire four-day convention to consideration of issues affecting the manufacturer. Monday, Jan. 16, was set aside for a series of meetings of manufacturers, both members and non-members of the institute, covering such subjects as: hosiery and underwear, men's furnishings, piece goods, knitted outerwear, and notions and fancy goods. The aim of the meetings was to develop more cooperation between manufacturers and distributors.

On Thursday, Jan. 19, representatives of various textile associations spoke on the question of what the wholesaler can do for their respective divisions. Walter S. Brewster, president, Association of Cotton Textile Merchants, urged that the wholesalers be dominated more by the selling than by the buying viewpoint, and said both manufacturer and distributor would gain if there were a greater tendency toward specialization at the selling end. "Carry fewer units of products" he suggested, "and you will do a better job on those you do sell." Such a policy also would permit narrowing the sources of supply, resulting in closer and more satisfactory relationship with the manufacturer. He further recommended confidential interchange of information on sales and stock trends on lines, styles and colors, as helping both jobber and manufacturer in planning operations. He warmly commended the institute for devoting so much of its program to the manufacturer and expressed the hope that a wholesalers' representative could appear at a future meeting of cotton textile merchants and give them the jobber's viewpoint.

Roy A. Cheney, secretary of the Associated Knit Underwear Manufacturers of America, speaking for the underwear industry, said the whole issue was one of profitable wholesaling. "If the wholesaler is prosperous, we will be," he declared, and he urged less of the price stress "which is driving prices again and again below the profitable level." Mr. Cheney deplored the current quotations on low-end underwear, terming them "lower than ever before in the memory of the oldest inhabitant."

Assuming the end of the price decline is here, he recommended two points to the jobber: (1) sell better goods at really only a trifle more than cheap goods, thus helping profits, prestige, customers and sources of supply; and (2) key purchases more carefully to clientele and stock more goods.

The address of Earl Constantine, managing director of National Association of Hosiery and Underwear Manufacturers, though he qualified it at the opening with an explanation of his brief experience in hosiery, proved one of the most interesting of the session. He said hosiery manufacturers in recent months had undergone a change of attitude regarding wholesalers and now were recognizing that closer cooperation was mutually helpful. Mr. Constantine disagreed with the view that wholesalers are in strong competition with the chain store, asserting that the wholesaler generally sells to quality stores while the chain store units usually are small and low-priced.

"We find a trend among wholesalers to specialize in certain hosiery lines," he continued, "and this is a good sign. Some hosiery mills complain that the wholesaler sometimes will desert a regular source and yield to price elsewhere. I can appreciate that complaint but I also can appreciate that when the mill changes its source of supply in buying raw material, it is doing something not dissimilar."

Mr. Constantine said the association had done considerable work recently in ridding the hosiery industry of equipment which was likely to be utilized for output of price goods. Several thousand seamless machines and 200 full-fashioned machines have been disposed of in the last several months, he added.

"We are now working toward elimination of night-work and Saturday morning work in mills," he concluded, "and this will make for a healthier industry.

## PAVE WAY FOR IMPROVED MANUFACTURER-DISTRIBUTOR RELATIONS

Saturday morning represents the most costly hours of mill operation. If we can accomplish these two points we can bring a closer relationship between supply and demand which will help all concerned."

Numerous knitted outerwear manufacturers who sell directly to the store, would welcome development of conditions enabling them to sell wholesale, and thus "rid themselves of the details and difficulties of distribution," declared Harold R. Lhowe, executive director and counsel, National Knitted Outerwear Association. He urged that wholesalers "be in fact wholesalers and not selling agents" and he warmly commended their policy of buying conservative styles. However, Mr. Lhowe urged closer study of styles so that the wholesaler could have lines of reasonably lasting value and yet not dead nor styleless.

These addresses concluded the presentation of the distribution case for the manufacturers at Thursday's session, and delegates to the convention commenting later said they regarded this session as of great significance in helping toward more satisfactory intertrade relationship.

### *Retailers Hear Textile Men*

Scarcely less important from the textile manufacturer viewpoint, was the convention of the National Retail Dry Goods Association, held simultaneously at the Hotel Pennsylvania. One of the key addresses was that made Tuesday evening, Jan. 17, by Col. Chas. F. H. Johnson, president, Botany Worsted Mills.

Col. Johnson said the recent prevailing insistence on price selling was tending to destroy not only consumer ability to buy but also his desire and willingness. Emphasizing that lower price levels and lower wages are all part of a vicious circle, the speaker added:

"The whittling process is going on to the tune of declining payrolls, destruction of consumer ability to buy, creation of fear of tomorrow and with it the loss of a job."

He said it was outstandingly important that the retailer sell only at a profit, but pointed out that such gave an unbalanced situation unless manufacturers also were permitted sufficient profit to remain in business.

Col. Johnson sharply criticized the present trend to exploit the word "quality" with merchandise not up to standard. He expressed regret that "quality today means the best products you can give within a given price, whereas in the past quality meant the best possible goods irrespective of price." He took exception to the retailer's practice of advertising coats as worth "$79.50 and up" and selling them at $49.50. The consumer reaction to this type of promotion he said is to wait longer, confident that the same coat will be cheaper, and also to make the consumer believe that a $79.50 coat is not worth $79.50 at all.

He continued:

"Think of the sales resistance this engenders in the mind of the consumer, against honestly priced merchandise. I believe every advertisement of this kind wedges business more deeply in the mire of depression and renders recovery more remote."

He concluded by stressing the interdependence of the retail and manufacturing divisions, which he said called for a definite end to the store's practice of price selling.

Quality also was a major theme in the address of Thomas B. Hill, president, C. K. Eagle & Co., Inc., and former president of the Silk Association, who discussed the promotion of high-grade merchandise in silk broadgoods. Practically everyone, said Mr. Hill, has a different idea as to what constitutes quality, and he offered the following definition as reflecting the consumer's expectation when buying quality merchandise:

"Merchandise possessing distinctive character or of being fashion-right, capacity for wearability, excellence of good workmanship and individuality."

There are three elements, Mr. Hill said, which if properly used will establish a closer relationship between the silk piece goods department and the housewife in every American home. He cited these as: skillful merchandising, the presentation of quality products, and proper educational support.

Mr. Hill pointed out that economy in the home rendered the housewife more insistent than ever today on quality of fabrics, and he added that "at this time low commodity prices make it possible to produce and distribute quality merchandise at a cost lower than ever before in the history of the silk industry and within reach of practically every pocketbook.

An address rich in ideas for merchandisers of men's suitings was delivered at a meeting of the merchandise managers division of the retailers' organization, by Leo Wolff, of Terhune, Yereance & Wolff, wool goods mill agents. Discussing the question, "How Can We Make Men More Style Conscious?" Mr. Wolf assailed present-day methods of promoting men's wear as "deadly" and urged more vitality and originality in all angles of men's wear merchandising. Here are a few of his most cogent thoughts: educate men to regard the terms "sport," "dude" and "dandy" as complimentary. Exploit more directly such fashion leaders as Jimmy Walker, Adolph Menjou, and Jack Buchanan, the English actor. Teach the young executive that he can dress smartly without being foppish.

Veteran delegates to the two distributor conventions said the attention paid to the manufacturer angle was more pronounced than ever before, and they regarded this development as helping toward better profits in both divisions.

**Wholesaler and Retailer are essential links in bringing together Mill and Consumer**

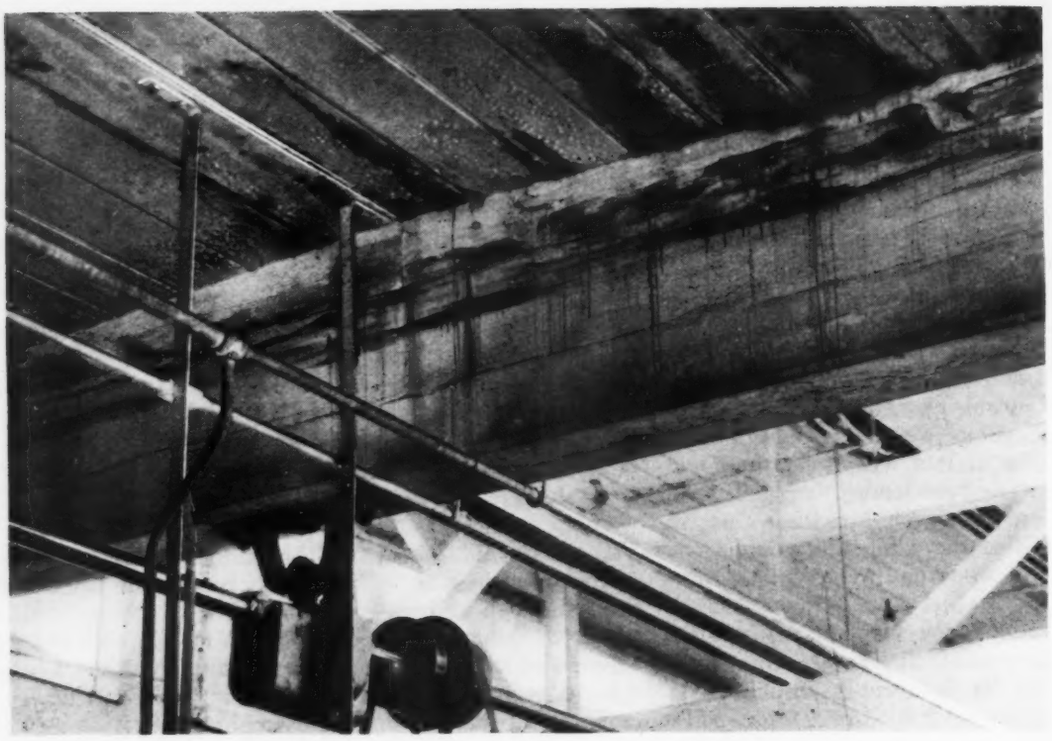


*Fig. 1. Decayed roof planks and beam showing beads of sweat on planking and streaks of extracted matter on timber*

# *Decaying Roofs . . .*

## CONSTRUCTION MODERNIZED TO ELIMINATE DRY ROT

*By R. H. Guest*
*C. M. Guest & Sons*
*Anderson, S. C.*

◆ *The replacement of decayed roof timbers and the construction of properly insulated roofs are problems of increasing importance to textile manufacturers. This article on the modernization of mill roofs, prepared by an experienced member of a contracting firm specializing in industrial construction, will answer many questions in the minds of textile manufacturers who find it necessary to replace their roof structures.*

UNTREATED timber and planking in any portion of a highly humidified building are subject to decay. This is especially true of uninsulated roof structures of bleacheries, dyehouses, weave sheds, and other buildings in which a very high humidity is produced by humidifiers, boiling vats, or drying cylinders.

The most common type of decay found in cotton mills is that known as "dry rot," which is a deterioration of wood caused by the action of a low form of plant life called fungi. Fungi are thread-like, lace-like white growths which wind their way through the wood, feeding upon its cell structure. If the fungi produce decay in a very damp place—on the surface of a beam in a wet, unventilated basement, for instance—the decay is called "wet rot." If, on the other hand, the fungi destroy the core of a column or beam not apparently exposed to moisture, the decay is called "dry rot."

### *Result of Dry Rot*

In the case of dry rot, the timber loses its strength, becomes very brittle, and changes in color to dark brown. This action usually takes place inside the lumber, and for this reason the damage is often quite extensive before

*Fig. 2. Decayed beam in weave room where 88% relative humidity is maintained*

it is detected. The first portions to be attacked are the planking at the bearing over the beams, and the beams along the top just under the bearing of the planking.

Moisture is essential to fungus activity, so dry rot is found only in wood subject to moisture, such as that caused by condensation. The moisture might be contained in the timber when placed in the building, however—especially when green timbers are used. It has been found also that a definite range of temperature, varying with the different forms of fungi, is necessary if the fungi are to thrive. Without this range of temperature, and without the necessary moisture, the fungi are either killed or lie dormant until conditions are favorable to their further attack on the wood.

The temperature and moisture content of the air might be ideal, and yet the fungi not thrive, for it is necessary for the moisture of the humid air to condense before the fungi can receive enough moisture for extended decay. In the case of dry rot, the moisture is transported from the surface of the timber and planking where it condensed and is conducted through the thread-like structure of the fungi themselves. Thus is explained how the fungi inside the column obtain the requisite moisture for their extensive destruction of the wood. The condensation takes place when the warm, moisture-laden air comes in contact with the relatively cold surface of the improperly insulated roof planking. Fig. 1 shows the condensate on the under side of the plank.

## *Trouble from Increased Humidity*

The process of decay in roof timbers has been hastened in many cases where relative humidity has been increased in weave sheds, the roofs of which were untreated and insufficiently insulated to prevent condensation. In one mill, for instance, a room had been used for spinning

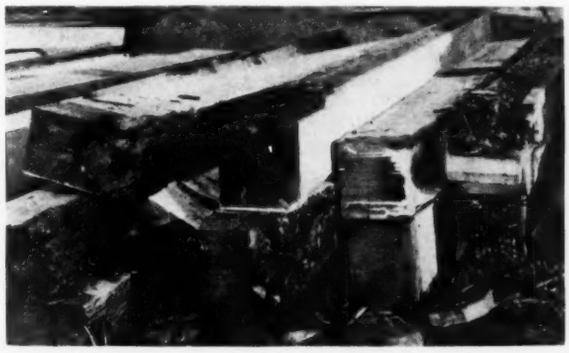


*Fig. 3. Beams recently taken from roof of room which was converted from cloth room to weave room in 1926*

for years without the least evidence of decay, but after the spinning had been replaced by weaving, with an increase in humidity, the roof structure began to decay in only a few years.

Fig. 2 shows a decayed beam in a room where the product was changed from a coarse construction to very fine goods requiring a relative humidity of 88%. Before the change there were no signs of decay, but three years after changing to the higher humidity, there was marked evidence of decay; and at the present time after five years the roof is being shored to prevent collapse. Fig. 3 shows several beams of a lot of 60 recently taken from a room that had been used as a cloth room, but which was given over to weaving in 1926, with the result that the temperature and moisture of the condensate were sufficient to cause the fungi to destroy the entire roof structure. Fig. 4 shows a pile of old planking decayed at the ends which bear on the beams.

The detection of dry rot is not a difficult task, but the determination of the extent of the damage, and whether the fungi are alive, dead, or dormant, is a job for the industrial engineer. Dry rot is first evidenced by streaks of extracted matter on the sides of the beams, as shown in Fig. 1, and by settlement of beams on column caps. Another indication of this trouble may be the improper alignment of shafting that is attached to the wood beams. The extent of decay generally is much greater than at first thought.

## *Preventing Decay*

The decay caused by certain types of fungi can be retarded by heat sterilization, but this procedure requires a length of time and a degree of temperature that make this method almost prohibitive. Surface treatment, such as painting with a wood preservative, is of little value since the fungi which are doing the real damage are

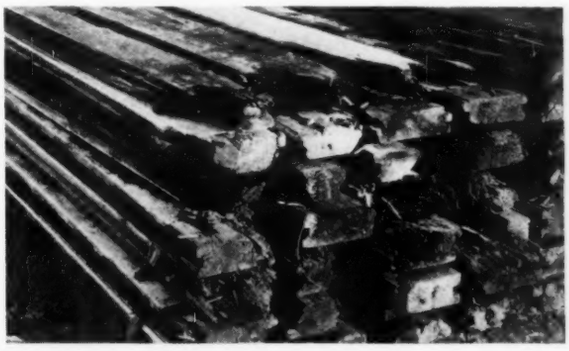


*Fig. 4. Old roof planking decayed at ends*

inside the timber and cannot be reached. The ventilation of damp basements is an effective means of retarding, if not eliminating, decay in such places. The relocation of steam coils and roof drainage pipes so as to prevent condensation in local areas is effective in preventing decay in small areas around such pipes.

The surest means of preventing decay is that of reconstructing the roof so as to prevent condensation. This can be done by (1) insulating the existing roof, but where decay has progressed to any appreciable extent it is advisable (2) to rebuild the roof structure of highly durable or treated planking and timbers, over which is applied the proper thickness of insulation and a good built-up roof. A highly durable wood is expensive and difficult to obtain; therefore it is more economical and probably safer to use a lower grade of lumber that has been pressure treated with zinc chloride or one of the other practically clear preservatives. It is advisable to purchase treated lumber several months in advance of the date it is to be used, so that it will be dry when placed in the building. This will eliminate the large shrinkage cracks which always result when wet and green timbers and planking are used.

## *A Modern Roof*

The sketch in Fig. 5 shows a section through a roof designed to eliminate condensation and to resist decay. Over the roof planking is placed one layer of sheathing paper to keep the asphalt of the felt above from dripping through. Above this should be laid two plies of saturated

felt thoroughly mopped in between and on top with asphalt, into which is imbedded the proper thickness of insulating board, either fibrous or cork. The two plies of felt serve as a moisture stop and are absolutely necessary to prevent the warm moist air from entering the upper parts of the roof construction and thus impairing the effectiveness of the insulating board. Over the insulating board is laid the built-up roof. The insulating board will partially lose its insulating properties if it becomes damp.

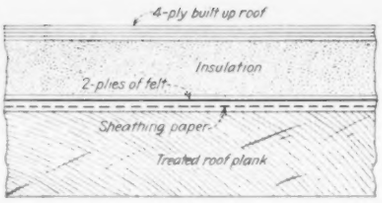



*Fig. 5. Roof designed to eliminate condensation and resist decay*

The built-up roof of the type described will probably last 18 to 25 years, but the planking and timbers should remain in a satisfactory condition throughout the life of the building. The effectiveness of this type of construction was clearly demonstrated recently at a plant in South Carolina, where half of the roof of the weave shed was reconstructed as outlined above, while the other half, for experimental purposes, was not immediately reconstructed. There was absolutely no condensate on the ceiling plank of the new section, while the old was covered with beads of sweat, or condensate.

Reluctance to proceed with roof modernization, such as that outlined above, is no longer justified, as there has been developed a method of removing timbers with practically no disturbance of plant operations. Humidity is maintained at the normal percentage, except in a small area for a limited time; and, as all operations are carried on from the top side, no heavy scaffolds are built on the floor below. A light canvas is stretched over the machines and under the beams to prevent splinters or trash from falling into the goods.

This method of removing and replacing beams is clearly shown in Figs. 6 and 7. It not only permits continuous operation of every machine in the department over which the roof is being repaired, but also has the advantage of requiring only half as much time as old methods, depending upon main strength and awkwardness. Moreover, the labor cost of reconstructing roofs by this new method is only about one-third as much as that of the older methods.

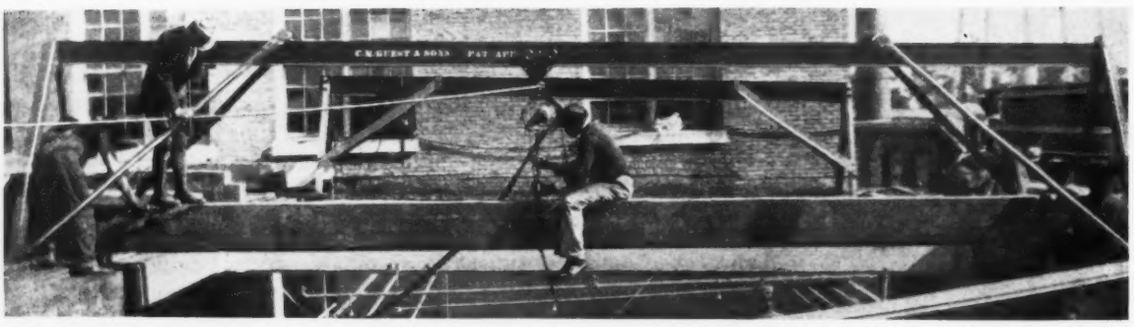
The total expenditures necessary for the mill to make for such revamping, including engineering fees, per 100 sq.ft. of roof area, are estimated as follows:

| | |
|---|---|
| Weave shed, with new steel-sash monitor | $70.00 |
| Weave shed, without monitor | 65.00 |
| Weave shed, saw-tooth type, with new steel sash | 87.50 |

These figures contemplate removing all old timbers and planking and replacing them with treated dense merchantable yellow pine, new insulation as described, and four-ply built-up roof.

The advice of competent engineers should be obtained by the mill owner faced with a problem of roof reconstruction. Production methods have changed since old mills were built, and it is not advisable to rebuild roof structures just as they were without first studying the new conditions. Monitors can be designed by the engineers to reduce condensation and drippage on goods, and also to give better light and ventilation. Beam sizes can often be reduced because of the omission of shafting that was formerly attached to the beams. Above all, the engineer's advice is needed to determine the kind of lumber, the type of preservative treatment, and the type and thickness of insulation and built-up roof required in each particular case.

*Fig. 6. Removing decayed roof timber*

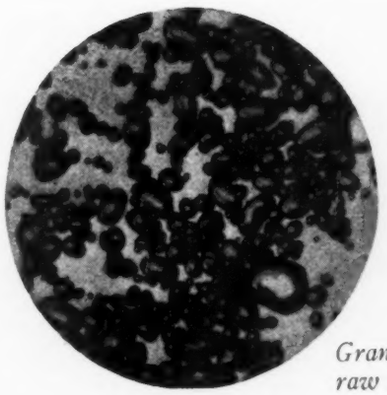


*Illustrations courtesy C. M. Guest & Sons*

*Fig. 7. Swinging new roof timber into place*

# *Starches and Dextrins*

## FOR SIZING, FINISHING, AND PRINTING



*Granules of raw starch*

*Starch cooked 1 hr. at 192° F.*

DUE to the lack of scientific data, choice of a particular type of starch for warp sizing, finishing of woven fabrics, or preparation of printing pastes has, in the past, been governed almost entirely by the experience of the user. While continued research is needed, recent investigations have begun to throw some light on those properties of starch which influence its applicability for specific purposes. In this article we shall consider several of the more important types of starch and starch derivatives used in the textile industry, and suggest some problems which require further study.

The starches to be considered can be classified as follows: (1) raw starches; (2) dextrins; (3) thin-boiling starches; and (4) vegetable glues.

Typical of the starches employed in textile processing are those obtained from corn, potato, wheat, tapioca, rice, and sago. Raw starches are insoluble in water, but form colloidal dispersions when the temperature of the water is raised to the bursting point of the granules. Thus, one investigator reports that cornstarch forms a dispersion at a temperature of 80° to 85° C., potato starch somewhat below 65° C., and wheat starch at about 85° C. As the temperature of the starch "solutions" falls below the bursting point of the granules, the viscosity increases, but the dispersed starch does not settle out or revert to its original form. These dispersions vary greatly in cohesiveness, viscosity, fluidity, clearness, color, and adhesive properties, depending on the type of starch.

Dextrins are produced by dampening starch with water and a hydrolyzing agent, heating, cooling rapidly, and conditioning with moist air. True dextrins are soluble in water. Some starches can be converted to water-soluble products by heating alone; that is, without the use of hydrolyzing agents. These compounds, known as British gums, are said to be practically free from unconverted starch, and to have a greater body and viscosity than true dextrins. A product called "white dextrin" is a thin-boiling starch derivative produced in a similar manner to real dextrin, but at a lower temperature and by use of a larger amount of hydrolyzing agent. It contains raw starch, partly converted starch, dextrin, dextrose, etc.; and is only partially soluble in cold water.

Thin-boiling starches are prepared by making the starch into suspension with water and a hydrolyzing agent, digesting for a number of hours below the bursting point of the granules, filtering off the excess liquid, neutralizing with an alkali or by thorough washing, and drying. The term "soluble-starches," which is sometimes applied to these compounds, is misleading, as they are insoluble in water. The fluidity of pastes made from the thin-boiling starches can be controlled by modifications of the manufacturing process.

Vegetable glues are alkaline starch compounds or modifications, giving with water a stringy, glue-like mass of high adhesive power. They find use in textile processing for combining duplex fabrics and for other special applications.

### *Evaluation of Starches*

Thus far little has been done toward the development of adequate methods for the evaluation of starches and their derivatives. The literature on the subject is for the most part misleading and contradictory. Some recent studies, it is true, have been made of the physical properties of starch pastes which affect their stiffening power on fabrics. It appears from these investigations that the stiffness of a sized fabric depends on the coating and penetrating powers of starch solutions, which in turn depend on the consistency of the solutions; also, the consistency of the solutions depends on the size of the swollen starch granules. These studies, however, were confined to a comparatively small number of raw starches, and are by no means conclusive.

Meager as is the information on starches in relation to finishing of woven fabrics, still less is known of the properties of these materials which govern their suitability for preparing printing pastes. And turning to warp sizing, we find that we are ignorant even of the characteristics of a yarn which can be woven most efficiently.

It appears, then, that development of adequate methods for the evaluation of starches and their derivatives requires, first, a proper understanding of the functions which the starch is supposed to perform; and second, a study of the properties of starches and starch derivatives insofar as they relate to those functions. Until information of this nature is made generally available, rule-of-thumb methods must prevail in the use of starch for sizing, finishing, and printing.

# *Bedford Cord*

## AND ITS COUNTERPARTS, COTE-DE-CHEVAL AND PLISSÉ

*By B. D. Blackman*

*Fig. 1. Loose warp ends, showing defective back of fabric*

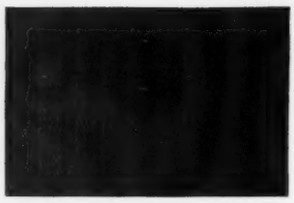


*Fig. 2. Wide and narrow ribs caused by improper entering*

*Fig. 3. Defects obscured to naked eye by yarn tints disclosed by photo*

*Fig. 4. Imperfection caused by regularly missing shaft*

"NEW fabrics add zest to spring lines." The phrase has a familiar tone; and, as the weeks go rolling by, it will be heard and seen with increasing frequency. Every fashion sheet affords it a conspicuous position. It is the keynote of well-nigh every style showing. In the current fabric-fashion forecasts we find the exquisite matelassé is headlined, the rough weaves are given prominent space, and somewhere in the dispatch we are sure to be told that cords are popular and will appear in spring weights and new colorings. Prints are there too, as usual—and possibly more than usual, it will be found.

The bedford cord is of the conservative middle class in the extensive family of distinctive fabrics. Lacking in the luxurious graces of the matelassé, it avoids too the coarser substance of which the roughs are fashioned. Cords, by their avoidance of either extreme, attain that happy medium which is the essential factor in the success of many popular fabrics. To the ultimate consumer, they offer a pleasing variety—a complete range of weaves from sheer crispy fabrics to the heavier drapy weights. They are properly and becomingly worn upon any occasion—from tennis to tea, from dinner to dawning. Advantage is taken by the cutter of the opportunity to use the fabric at varying angles.

At this time the weaves most popular with houses making the 3.75 and 6.75 lines are the 2x1 and 3x1 reversible twills. They have in the past worked mostly with two-sided fabrics such as crepe georgette, sand crepe, waffle, etc.—fabrics that are most practical for volume production, affording no loss in material when cutters make mistakes as to the face and back of the goods. In the cheaper garments they also give the dress man the opportunity to use a back of 2x1 or 3x1 reversible as a throwback, eliminating trimming.

Cote-de-cheval and plissé bedfords are those that bind and float alternately on two groups of ends for one, two, three, or four picks to one repeat, thus producing in the finished state a round hollow rib and, as in the plissé-bedford, a raised hollow rib.

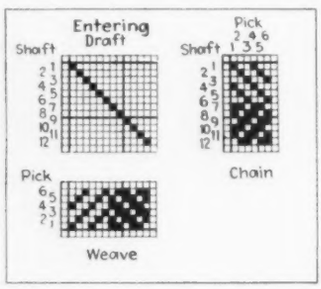



*Fig. 5. Bedford cord, 2x1 broken reversible twill, 12 ends to one repeat, 6 to rib, 6 to wale. Warp: 100-den. 40-fil. 50/55-turn viscose, 2 l., 2 r. Reed: 45/3/1, 135 ends 46" in reed, finished 39". Filling: Same as warp. Picks, 80. Dyer's shrinkage, 15%.*

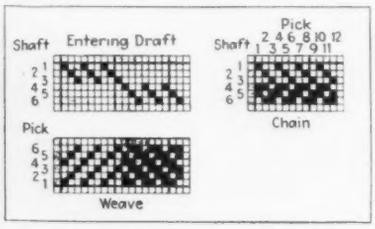



*Fig. 6. Bedford cord, 2x1 broken reversible twill, 18 ends to one repeat, 9 to rib, 9 to wale. Warp: 100-den. 40-fil. 50/55-turn viscose, 2 left, 2 right. Reed: 45/3/1, 135 ends per in. Reed width, 46 in.; finished, 39 in. Filling: Yarn same as warp. Picks, 72 on loom. Dyer's shrinkage, 12%. Other details as in Fig. 5.*

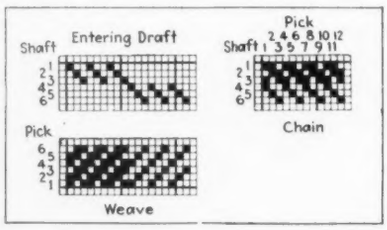



*Fig. 7. Bedford cord, 2x1 twill, 18 ends to one repeat, 9 to rib, 9 to wale.. Weave reverses on each 9 ends, but lines run in one direction, rather than form a herringbone. Picks, 72 on loom. Dyer's shrinkage, 12%.*

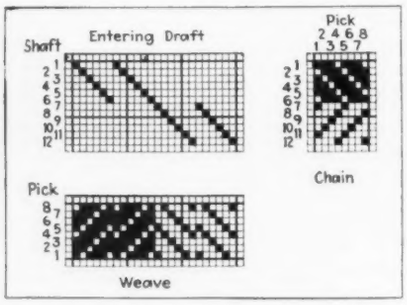



*Fig. 8. Bedford cord, 3x1 broken reversible twill, break in rib and in wale, repeating on 2¼ ends, 12 to rib, 12 to wale. Warp: 100-den. 40-fil. 50/55-turn viscose, 2 l., 2 r. Reed: 45/3/1, 135 ends, or 33¾/4/1, 133½ ends. 48" in reed, finished 39". Filling: Same as warp. Picks, 80 on loom. Dyer's shrinkage, 12%. Breaks in rib and wale give rounder rib. (McGill-Paris Fabrics Corp.)*

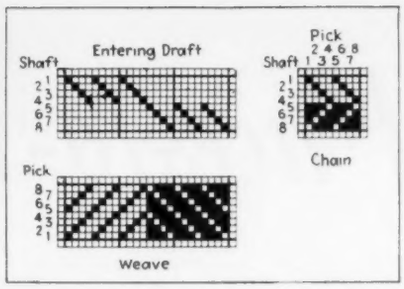



*Fig. 9. Bedford cord, 3x1 reversible twill, repeating on 24 ends, 12 ends to rib, 12 ends to wale. Warp: 4-thd. 20/22, crepe twist, 2 left, 2 right. Reed: 40/4/1, 160 ends, 48" in reed, finished 39". Filling: Same as warp. Picks, 80 on loom. Dyer's shrinkage, 15%. Sample by courtesy McGill-Paris Fabrics Corp.*

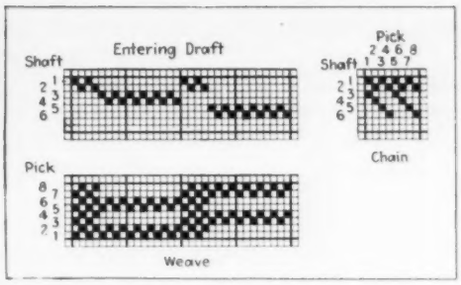
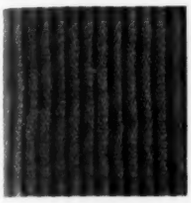



*Fig. 10. Cote-de-cheval. Warp: 5-thd. 20/22 crepe twist. Reed: 35/4/1. 47" in reed, finished 39". Filling: 5-thd. 20/22 crepe twist. Picks, 72 on loom. Dyer's shrinkage, 12½%.*



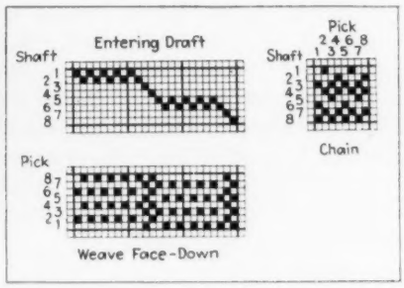



*Fig. 11. Cote-de-cheval, hollow rib, 24 ends to one repeat, 2 ribs to one repeat, 12 ends to each rib, 4 picks to a repeat floating and binding alternately on the two groups of ends, giving round effect. Warp: 100-den., 40-fil. 50/55-turn viscose, 2 l., 2 r. Reed: 40/3/1, 120 ends. 48" in reed, finished 39". Filling: Same as warp, Picks, 80 on loom. Dyer's shrinkage, 15%. Sample by courtesy McGill-Paris Fabrics Corp.*

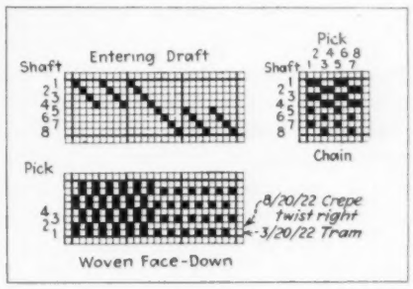


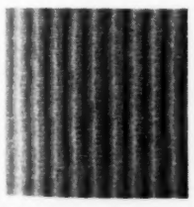

*Fig. 13. Bedford cord with plissé effect, repeating on 24 ends, 12 to wale and 12 to rib, and 4 picks, one group working grosgrain and the other 1 pick tabby and 1 pick repp float to repeat on the 4 picks. Warp: Two beams, ground on one with high tension, rib on other. Yarn, 100-den, 26-fil. acetate. Reed: 35/4/1. 52" in reed, finished 39". Filling: 1st pick, 3-thd. 20/22 tram; 2nd pick, 8-thd. 20/22 right crepe twist; and repeat. Picks 108. Dyer's shrinkage. 10%. Higher rib on this fabric, as compared with Fig. 12, is due to greater reed width, which allows more shrinkage.*

For the last month or two, mills have produced these fabrics in fair quantities. At first the 2x1 and 3x1 reversible broken twills were the quantity-production number. At present the hollow-weave rib, more often called cote-de-cheval (rib of a horse), and the raised rib, known as plissé, seem to be the favored fabrics. This is due no doubt to the fact that the cote-de-cheval and plissé have ribs that are raised from the surface, as is the case of true plissé. An additional reason for the popularity of the cote-de-cheval is its round rib. Ordinarily bedford cords, with their reversible broken-twill weaves, have neither of these two desirable characteristics.

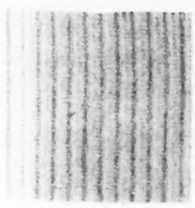
Already many pieces of defective merchandise are being seen. To begin with, A-quality yarns are necessary, and slip-shod and speed-up methods must be abandoned. It behooves greige-goods brokers and converters to select their weaving mills with care.

The weaves used for bedford cord and cote-de-cheval, plus the tints of the creped yarns used for warp and filling, tend to camouflage the majority of defects. Many of them will pass unnoticed by the weaver, unless he has shown to him what things he should be on the lookout for—and their causes and remedies. Even then, unless the preliminary processes have been perfectly executed, there will be defects that are seen only on the examining frame and, in a few instances, only after finishing.

Fig. 1 illustrates defects caused by loose ends resulting from uneven tension. All warps should be made with the prevention of this imperfection in mind. Spools on the creel should be of like weight, size, and yarn content. All ends should be in the warp; that is, there should be no broken ends obliging the weaver to run piecing spools with their doubtful tension. When beaming, every end should be even; none should be loose. Plenty of paper should be used in beaming, as this will help keep the tension even on all ends. All heddles should be perfect. Drop wires, it should be remembered, have at times a tendency to become caught on a neighboring wire and will not then make the necessary contact when an end is loose. Drops should be placed properly and not crowded on four bars when six bars are needed for better distribution of these wires.



*Face*



*Back*

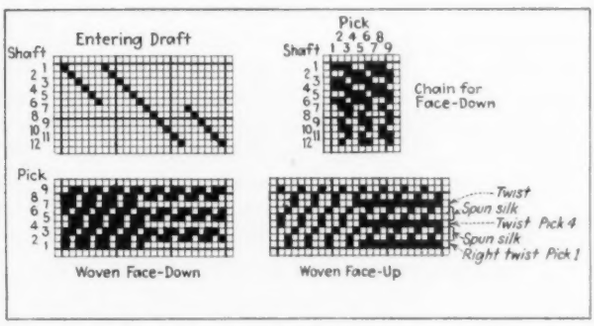



*Fig. 12. Bedford cord with plissé effect, repeating on 24 ends and 3 picks. Warp: Two beams, ground on one with high tension rib on other. Yarn, 20/22, 3-ply, both beams. Reed: 60/3/3. 50" in reed, including edges; finished 39". Filling: 1st pick, 8-thd. 20/22; 2nd pick, 62/1 spun silk; 3rd pick, 62/1 spun silk—1 repeat of weave. Picks, 104 on loom. Dyer's shrinkage 10%. Crepe-twist filling floats on one group of ends in back of cloth, radically reduces finished width and forms raised hollow rib.*

Fig. 2 illustrates defects caused by improper methods or laxity in checking against mistakes at the entering department. Thousands of yards of bedford cords with this type of error have been woven. The following common-sense helps to the enterer in checking against mistakes should help to prevent this tremendous loss to manufacturers. The fabric illustrated was woven with a 3x1 reversible twill—12 ends to rib, 12 ends to wale, 24 ends to one repeat. The warper's sections should be made in multiples of 24 or 12 and kept intact as sections by the enterer, this giving an opportunity to check at the end of each section. The required number of heddles per shaft and for each section thereof should be counted — not

measured—as they are placed on the shaft and in sections. At the end of the first group of each 12 ends the hander-in should remind the enterer of this fact by saying "twelve"; and at the finish of each second group, by saying "twenty-four." These entering errors, as well as many other defects, are difficult to see on the loom, due to the yarn tints (Fig. 3).

An imperfection caused by a shaft missing—that is, not lifting—every sixteenth pick is illustrated at Fig. 4. The cause may have been the unintentional omission of a pin in making up the chain, the later dropping out of a pin, or the use of too short a pin. Dobby cards that are even slightly split or have a hole slightly larger than the pin should be discarded. Sometimes the chain maker, instead of taking out a card having the latter defect, wraps cord around the pin in the hope that it will stay in —but it is nevertheless likely to fall out. When looking over the chain at the start of every warp, the weaving foreman should—besides checking pick by pick for the repeat of the loom cards—observe the condition of the cards. Pins of unequal height can be noted by scrutinizing the cards held at a slight angle when chain is made.

Figs. 5 to 13 illustrate typical constructions of the three types of fabric discussed. The very pronounced raised, rounded, and hollow rib of the plissé type is fabricated in the cloth by using two groups of ends, each group to be on a separate beam. The ground beam is woven under high tension. The untwisted or low tram-twisted filling material interlaces with both groups of ends for one or more picks; then the highly twisted crepe filling interlaces with the wale and floats in back of the other group. When dyed, this highly twisted crepe yarn contracts and pulls the edges of the rib toward each other.

The rise of renewed interest in line-effect weaves is not difficult to trace. It started the past spring when jerichos (often spelled "jericos") made their appearance as the first claimant to the volume business which had been so long monopolized by crepes and georgettes.

We saw, in the jericho, a slightly pronounced rib on the surface of the cloth. This characteristic could be perfectly executed only when the proper twist, pick, and shed were combined. As is the case with all new popular fabrics it was imitated in varying grades.

To the uninitiated manufacturer who lacked technical knowledge and advice, the matter of copying seemed simple. This was even more true of the mill with the technical staff. The general opinion, it will be remembered, seemed to be that the ribbed effect was formed by the pattern of the weave. At this time it is well known that the rib can be formed only by the proper combination of twist, pick, and shed. Only when the mills began the converting of these supposed-to-be jerichos, was it discovered that they lacked the essential character of the parent fabric. The cloths were found to be too flat.

Because of the difficulties in construction, the supply was rather limited for volume business. This very limitation created a demand among the cutters in the early autumn. Those mills which lacked technical skill, those which were habitual users of unthrown yarns and lacked the necessary mechanical equipment, and those which were eager to sponsor a suitable successor to jericho—all contributed to the evolution of the ribbed fabrics to the bedford cord and cote-de-cheval. The first two groups were eager to produce a line effect, a ribbed fabric, any ribbed cloth—horizontal, vertical, or diagonal. The latter were more interested in the production of a type which would be accepted as a worthy successor to the faintly ribbed jericho.

# *Face-to-Face*

## A MODERN

FACE-TO-FACE starching, a modern method of finishing cotton fabrics, enables a 100% increase in production, reduces costs, and gives an improved quality. This process, which was developed originally for finishing piece goods used in making Boy Scout uniforms, is not feasible for all classes of work, but is believed to be suitable for starching a wide variety of materials. The determining factor as to the applicability of face-to-face starching is, probably, the composition of the finishing bath.

Two grades and weights of cotton uniform material which have been handled successfully by the new method are a 30-in., 88x38, 3.00-yd. fabric, and a 31½-in., 98x44, 2.00-yd. fabric. Preliminary to starching, these goods are singed, scoured, and dyed with sulphur colors on the jig. Seals are printed on the back with steam black, and subsequently fixed by steaming.

The usual practice is to starch on an ordinary starch mangle with a mixture of yellow dextrin, cornstarch, and softener. Although a mixture of this kind answers the purpose for starching full-bleached absorbent cloth, it is not the most satisfactory type for goods which are non-absorbent. This is due to the fact that the opaque starch, instead of penetrating into the cloth, is deposited on the surface. As a result, during the handling of the material by the garment manufacturer, white starch lines develop wherever the fabric becomes crushed, creased, or scratched.

In order to overcome this difficulty a machine was constructed to provide a means of starching either in the regular manner in a single string, or in two strings face-to-face. At the same time an enitrely different finishing mixture was concocted.

### *Finishing Formula*

The finishing formula which was developed for use on the face-to-face starching machine is made from a stock solution composed of the following ingredients: 790 lb. glucose, 300 lb. yellow dextrin, 40 lb. palm-oil soap, and 44 lb. soluble oil. Water is added to make a total volume of 200 gal., and the mixture is boiled for 1 hr.

The actual running formulas vary according to the weights of the two grades of uniform cloth. The formula for the 2.00-yd. goods is as follows: 250 lb. stock size, 5 lb. yellow dextrin, 8 lb. palm-oil soap, 1¼ lb. soluble oil, and water to make 75 gal. (This is boiled for 6 min.) A more concentrated bath is employed for the 3.00-yd. goods in order to give them approximately the same appearance and handle of the 2.00-yd. fabrics; it is as follows: 325 lb. stock size, 20 lb. yellow dextrin, 4 lb. palm-oil soap, and water to make 75 gal. (This is boiled for 6 min.)

It is logical to assume that further modifications of the formula could be made for other classes of work. On the other hand, face-to-face starching would probably be impracticable for heavy sizing where the finishing bath

# Starching

## COTTON-FINISHING PROCESS

*By Myron W. Alling*

is composed largely of gums and starches which tend to cement together the two strings of cloth.

In starching goods face-to-face only the back of the cloth comes in direct contact with the hot-drying cylinders. During the drying operation, capillary attraction tends to draw the starching solution away from the face of the cloth. The proper body and stiffness are obtained, but the surface of the cloth is impervious to marking from creases or scratches. The new mixture, which consists mainly of glucose, is comparatively transparent; and therefore cannot be made to show marks of any kind unless it is mixed with other ingredients which are opaque.

The most important parts of the face-to-face starching equipment are shown in the accompanying diagram. The machine consists of a double set of galvanized-iron-pipe tension rails *G;* two pairs automatic guiders, *F,* which automatically steer the cloth; a starch mangle, consisting of a two-bowl mangle *H* with a twenty-density rubber roll 16 in. in diameter at the top, and a 16-in. copper deposit roll at the bottom; a starch box underneath the mangle bowls *I* with an immersion roll placed near the bottom, which causes the two strings of the cloth to pass underneath the surface of the starch mixture; a set of guide rollers to separate the strings *J;* a spring compensator *E* to take up the slack in the top string of cloth; another double set of automatic guiders *F;* a clutch, between the second set of guiders and the drying cylinders, which divides the machine into two units so that they can be run independently of each other in case of an undue strain or a breakdown; a series of vertical sets of drying cylinders *C* with a heat regulator to vary the intensity of the heat in the first two stacks of cylinders so as to prevent a too violent sizzling and possible mottling on the cloth; and two swings to plait the two strings into separate trucks *D.*

The swings *D* are belted together; and the last one is equipped with a small motor so that it can be used separately, by throwing off the belt, as an inspecting machine or for some other useful purpose. The starch mixture is prepared in the mixing tanks, set on a mezzanine floor, and flows by gravity through pipes to the starch box of the mangle. The method of preparing the machine for running is to thread up each string of cloth (*A* and *B*) separately through the tension rails, the first set of guiders, the starch mangle, the compensator guide rollers, the second set of guiders, the drying cylinders, and the swing plaiters.

[By making use of the double tenter clip which allows two layers of cloth to be tentered at one time on the same frame, the finisher could no doubt arrange the face-to-face starching machine and dry cans to operate in range with the tenter frame.—*Editor.*]

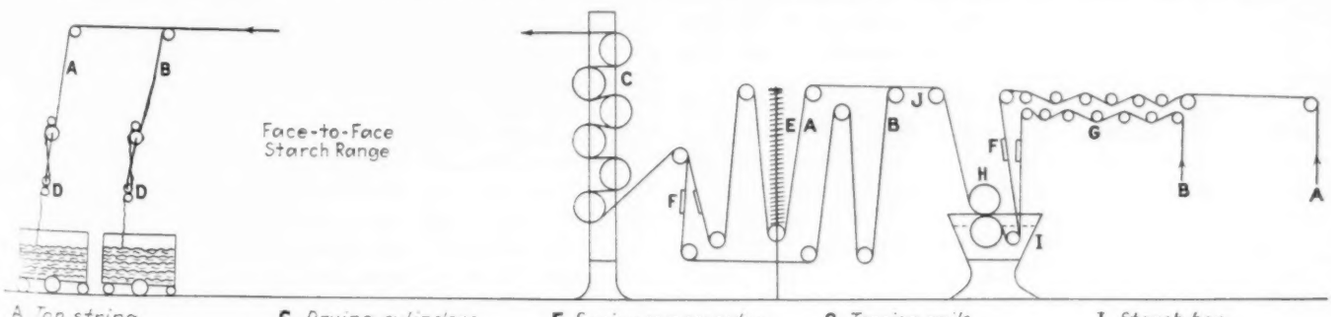
Operation of a face-to-face starching range is comparatively simple, providing the machine is well synchronized, and the theories of the difficulties of operation are understood. It has been found that the weight of the top mangle roll is sufficient to squeeze out the surplus starching solution, and that better results are obtained if no set or pressure is placed on the top roll.

The fact that the top string of cloth gets slack, necessitating a spring compensator, is explained by the condition under which the two strings of cloth are pulled through the mangle bowls. The bottom roll, which is the driven member, pulls the bottom string at a speed in direct relation to its circumference. The top string has the bottom string interposed between it and the bowl; therefore the diameter is increased to the extent of the thickness of the cloth, and the string is pulled proportionately faster by the increased circumference upon which it rides. This difference in speed is not great, and it is possible to counteract it by increasing the tension on the fabric. The spring compensator is more satisfactory, however, taking up the variation in slack. The need for the apparatus is especially important while the adjustments are being made at the beginning of a run.

### *Precautions Necessary*

The upper string of cloth must be run precisely on top of the lower string; otherwise, if an edge protrudes, it will not be squeezed and dried under the same conditions as the rest of the fabric, and a dark band will show all along the edge. The automatic guiders are designed to prevent this condition by keeping both strings on the same track. If, for some reason, a single string of material has to be run, fairly good results will be obtained by reducing the steam pressure in the first two stacks of drying cylinders, from the usual 10 lb. to 4 lb.

The labor requirements for a machine of this type are no greater than for an ordinary starch mangle if one takes into consideration the drying of the cloth. The production is twice as great, and the quality of the work is far superior to any other method known to the writer.




A Top string
B Bottom string
C Drying cylinders
D Swing plaiters
E Spring compensator
F Automatic guiders
G Tension rails
H Starch mangle
I Starch box
J Guide rollers

# *Textile Projector*

## DISCLOSES KNITTED AND

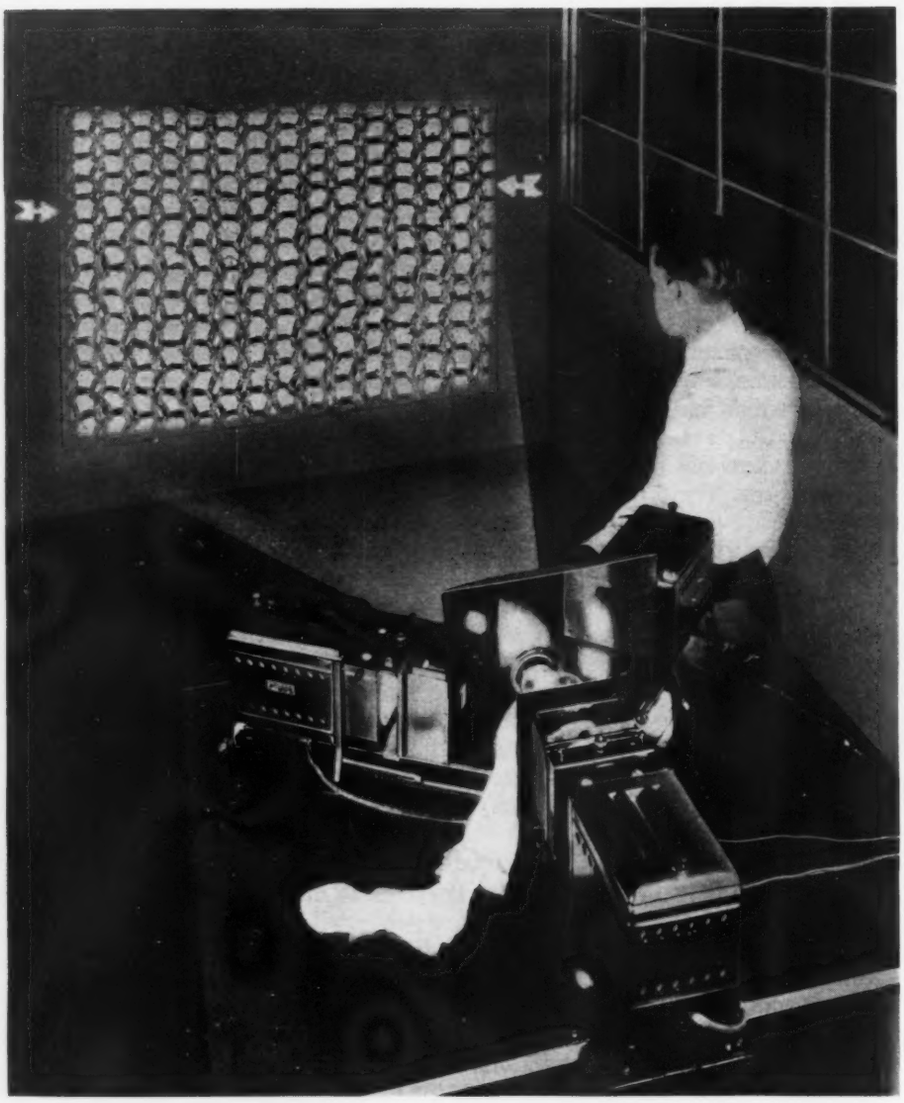


*Fig. 1. Projection of a partly sleazy fabric, showing distorted loops below the arrows*

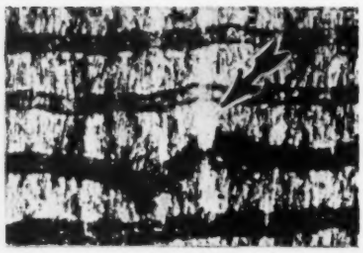


*Fig. 2. Silhouette of pinhole in woven silk caused by kink in horizontal crepe filling*

*Fig. 3. Same pinhole as in Fig. 2 shown in silhouette and surface projection*

IN inspecting knit and woven fabric, there are many defects found that require correct analysis in order that the cause may be located, the proper remedies applied promptly and efficiently, unnecessary losses and delays prevented in mill operations, and second-class fabric avoided. Often it is necessary to visualize a defect to a group of department managers; determine whether it is a mechanical, manual, or raw-material fault; and decide what is responsible for it.

The usual procedure in studying a defect is to place it under the microscope, find the magnification that will clear it up (or at least a part of it), and shift the fabric until the whole defect has been studied. Frequently it is necessary to make photomicrographs and study them to arrive at a conclusion. This method involves time and often seriously delays the remedy.

The trade needs the equivalent of a high-powered glass of large diameter for this work; but such a glass cannot be produced, owing to certain fundamental laws of optics. The need for special equipment has resulted in an ingenious textile projector developed through collaboration of the Bausch & Lomb Optical Co. with the laboratory of Julius Kayser & Co.

In analytical work the use of the projector greatly facilitates the execution, as it permits quick elimination of doubtful causes and narrows the case down to a few items for detailed analysis. It frequently enables one to determine what the defect is and saves unnecessary time and labor in unraveling and dissecting. The construction of a fabric can often be determined and the loop or weave formation traced without marring the fabric. The number of picks can be counted up to 1½ in. on a magnification of 40. Two specimens may be matched by fastening them both on the same hoop. A large specimen can be examined and discussed by a group of persons interested—something not possible with the microscope alone. In knit goods the projector facilitates the study of twists, evenness of yarn, uniformity of stitch plating, and defects caused by rough needles and sinkers. In woven goods it enables one to study uneven tension,

# WOVEN DEFECTS

***By Warren P. Seem***
*Julius Kayser & Co.*
*Brooklyn, N. Y.*

*Fig. 5. Actual size of loop as seen on screen*

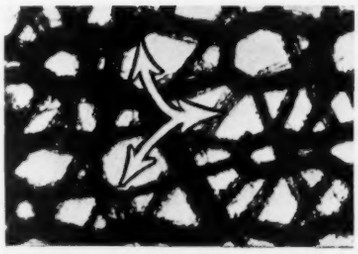


*Fig. 4. Silhouette of pinhole in milanese*

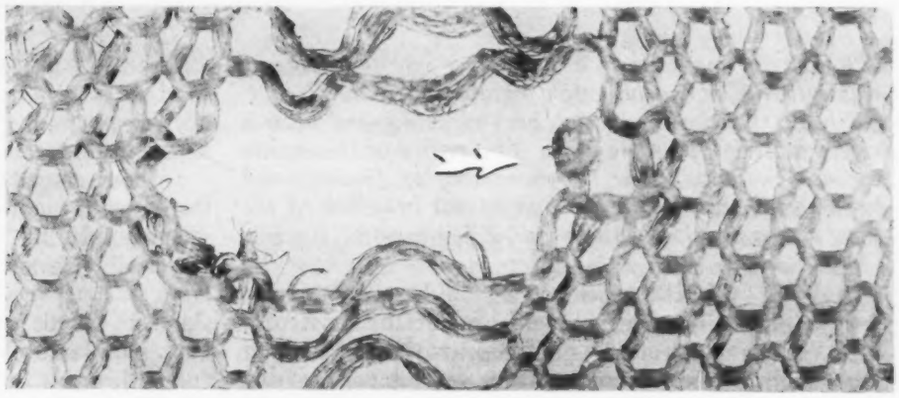


*Fig. 6. Silhouette and surface projection of hole caused by knot*

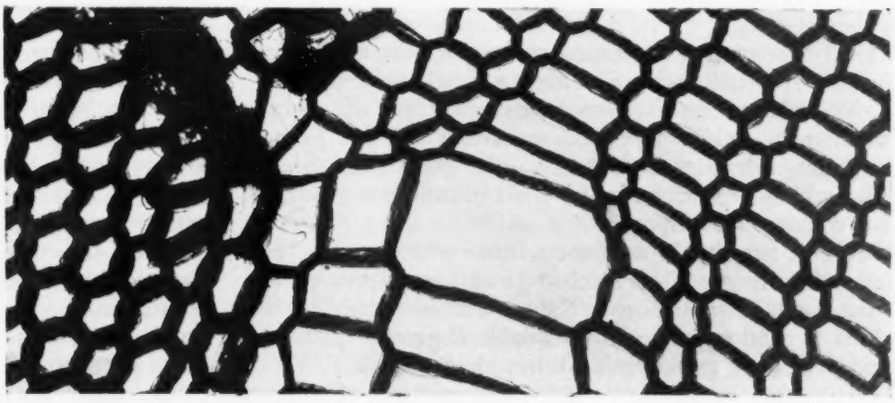


*Fig. 7. Silhouette of run caused by missing a loop in topping*

twists, and the results of worn or rough heddles, reeds, etc.

This unique textile projector consists of three lanterns, each equipped with a 500-watt mazda lamp so arranged as to provide surface and silhouette illumination simultaneously, separately, or in varying combinations. The lanterns providing surface illumination are adjustable so as to permit variations in the angles of incidence. A very high-grade projection lens in a focusing mount was found to be essential. Ordinary projection lenses failed to reveal the details necessary to analyze the cause of defects. Colored light filters are provided to produce a contrast and show up the defect in which the observer is interested clearly. Naturally this detail of the work does not show in the accompanying photographs.

Two magnifications are generally used, 40 and 80 at the screen. On a 40 magnification a 2-in. round specimen is projected, and on the 80 magnification a 1-in. round specimen is projected. The projection is about 80 in. on the screen, more or less as desired, and depends on the distance of the lantern from the screen, which is about 12 ft. This is regulated by moving the lantern. The wall screens are aluminum curtains or a ground glass mounted in a frame. The ground-glass screen is viewed from the rear. As this gives an unobstructed view, it facilitates the tracing and copying of a design. It also makes possible the projection on the screen of details of black fabric.

The silhouette projection engages only the rear lantern. The light can be filtered with green or red glass screens as desired. The surface projection engages the two front lanterns; in this case the object is shifted and screens are used as required to project the object clearly on the wall screen.

The surface projection only is used when the back of the fabric is light in color. For silhouette and surface projection at one time the three lanterns are used, and the rear light is usually filtered with one of the colored glasses until the object is clear and definite in detail.

Figs. 1 to 7 show defects with silhouette and surface projection, separately and in combination.

As the photographs lack the natural color and are very much smaller than when projected on the screen, they are very poor illustrations of the actual objects when shown by the projector.

# *Rabbit Fur*

## MAKES SHARP RISE TO POPULARITY IN TEXTILES

*By Jerome Kohlberg*

◆ *Rabbit fur is relatively a new-comer into the ranks of usable textile fibers, although angora rabbit hair (with which the "fur" should not be confused) has been a luxury material for some time. The author of this article was associated with the merchandising of feathers and down to the textile industry and he has been behind the more recent developments in rabbit fur fabrics.*

RABBIT HAIR, which has of late been extensively used in the textile industry, is for the most part really rabbit fur, cut off the pelts of rabbits which are brought to the hat cutters from various parts of the world. Though there are comparatively few firms in the fur-cutting industry, its annual volume runs into many millions of dollars. The rabbit fur used in most of the felt hats made in this country is the same type of fur now used for spinning with wool, silk, and cotton, but the spinnable fur is prepared somewhat differently.

Australia produces tremendous quantities of average rabbit pelts, while finer ones are brought from France, Belgium, Germany and Russia. In the United States, wild rabbits are caught in the West in sufficient quantities for commercial purposes.

Rabbit fur should not be confused with angora. The latter is a longer fiber combed from live angora rabbits raised for this purpose. Rabbit fur is cut from the skins of dead rabbits. It is available in greater quantities and prices are considerably lower than angora.

Although rabbits are killed throughout the year, length of fur varies with the season. The animal has a heavier and finer fur in the fall and winter and it is pelt from these seasons that produces material most suitable for textile spinning. Hair which is mixed with the fur is a coarser fiber, and runs from ½ to 1¼ in. in length. The fur is softer and has a fine handle, running from ½ to 1 in. This softness and fineness give the yarn the feel that is desired.

Grading of rabbit fur for textile use has been to some extent standardized by experiments in which fur cutter and textile spinner have cooperated. White rabbit fur, which may be dyed to the lightest pastel shades, is most in demand. There is also fair call for fawn-colored fur which will dye to all light shades, except the palest pinks, blues and yellows. Gray fur has not been used in quantities, but its increasing use is practically assured with the coming fall and winter seasons, when it may be used in dyeing to the darker, winter colors.

Prices vary with quality and color. White is the highest priced, best grades ranging from $1.65 to $3.50. Fawn-colored fur in comparable quality is about 25% less, and gray runs 33% lower than the white. In addition, there are other grades of off-colored white, fawn and gray, that are made up and that run as low as 60c. per pound.

Practically all fur is packed in 5-lb. heavy paper bags, which are then packed 40 bags to a burlap bale weighing 200 lb.

Production of rabbit fur in the cutting plant is limited by the equipment installed, for, with the exception of the original conditioning, practically the entire handling of the skins is done by machine. There are several fur cutters which can produce 5,000 lb. a day, while others turn out 300 or 400 lb. It is difficult to estimate the quantity used for textile purposes, but perhaps 1,500,000 lb. of skins, or 350,000 lb. of fur have been used so far. After several years of experiment, it was only last summer that yarn spinning with rabbit fur began to find a wide market.

In preparing the fur, the skins are first softened and then put through shakers to eliminate the dead hair (kemp). If the fur is to be used for hatters it is then chemically treated. If it is to be spun, the fur is cut from its pelt by a multi-knived machine, which cuts the skin into shreds (the shredded skin eventually going for glue manufacture) and separates the fur from it. The fur is then put through a series of blowers for the purpose of cleaning.

The spinner of rabbit fur must be particularly careful that no chemical has been used in the process of producing the fur. It is imperative that fur prepared for hats be not used, as the chemicals applied for felting work havoc with fur utilized for textiles. The spinner must also be careful to use only clean fur.

Satisfactory means have been devised for treating the fur so that it will resist dyestuffs. When yarn is finished, spun and dyed to the desired color, the rabbit hair so processed remains in its original shade.

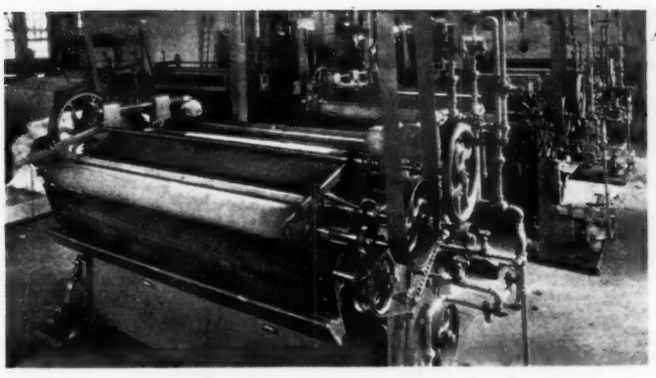
Rabbit fur cut from the pelt is a short staple fiber and has found most use on the woolen system. One or two worsted mills have been able to use fur in fair quantities, but the woolen spinner has been generally most successful in producing satisfactory yarns.

Rabbit fur has been found suitable for spinning with silk, and several leading silk spinners are now offering silk yarns blended with rabbit fur. The latest development is its adoption by the cotton spinner and this combination, though still in the experimental stage, seems particularly worth while.

With the present-day demand for cheap and cheaper material, the mill using rabbit fur should be particular not to make such a low price on the rabbit yarn as to necessitate too great cheapening. Cheap rabbit yarn cannot be serviceable. It sheds, wears off, and means trouble for the maker, and will prove unsatisfactory to wearer, creating dissatisfaction that will act as a boomerang to its future production. Better made, quality rabbit yarns at fair prices not only give the desired effect but wear well without shedding.

Rabbit fur, because of its lightness and its warmth-giving qualities, lends itself to many types of fabrics and even though the greater part of the business done on the yarns is and has been in the novelty lines, there is excellent possibility that further development may find this a staple short fiber for the textile industry.

# *Water Marks*... CAUSES



PREVENTION

CURE

*By G. L. Atkinson*

ONE of the most common defects confronting the finisher of dress goods and coatings, particularly poplins, reps, and charmelaines, is that of watering or embossing. This fault can seldom be detected in the actual crabbing and scouring of the goods, occasionally it will be noticed during the finishing processes, but often will appear only when the goods have been finally pressed.

The trouble nearly always occurs in one of three processes, namely, crabbing, decatizing, or pressing. Often the finisher will find that pieces which have been passed forward from the perch, free from crab watering, will become watered in the finishing processes. This is due to the fact that decatizing and pressing aggravate the fault and make it discernible.

A saving of time and cost can be made if the pieces are perched before they are subjected to the final finishing processes. Pieces showing watering at the perch can then be re-scoured, thus saving useless finishing costs. Again, pieces passed forward from the perch, if they become watered in finishing or pressing, will not have to be returned for scouring.

It is a great advantage to be able to distinguish between the forms of watering peculiar to each process. A brief description of various types of watering follows: Crab watering is distinguished by heavily ribbed or broad wavy marks across the full width of the piece; sometimes they occur at the head-end, sometimes at the tail-end, and often extend halfway into the piece. Water marks formed during decatizing are fainter and smaller than those produced on the crab; generally they are found only at the beginning or end of the piece; decatizing will occasionally intensify crab watering and make it apparent. Press watering takes the form of a design, such as frost might make on a window, and usually continues throughout the length and width of the piece.

Crab watering is often caused by excessive pressure; that is, too many pieces are run into the bowl of the machine at once. In cases where a fabric is known to be subject to watering, it is advisable to crab the pieces singly. Likewise too much tension should not be put upon the pieces, but just sufficient to keep the pieces taut while passing from one bowl to the other, thus preventing cockling and uneven crabbing.

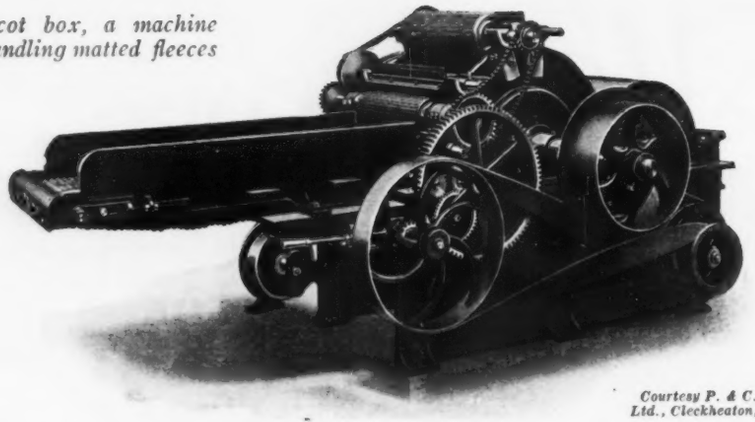
When fabrics such as poplins and reps have to be steamed in order to avoid "cracking" in the dyeing process, it is advisable to use a steam-reducing valve to make sure that no more than a certain pressure of steam can possibly be blown into the steaming can. The pressure should never be greater than 14 lb., and 7 to 9 lb. will be found satisfactory. The longer time required for steaming at low pressure is always worth while, as there is little danger of the goods being watered. It is advisable, also, to blow steam through the can before winding the pieces on, in order that any condensate remaining in the can from the previous blowing will not be forced into the pieces.

There is little danger of watering during decatizing unless the pieces are steamed and then are cooled by means of the pump on the machine, as in the case of coatings, etc. The cooling of the goods is likely, however, to make visible crab watering, which was not apparent before decatizing. In decatizing, the pieces should be run on to the machine head-end-first, thoroughly steamed, and cooled. The machine should then be reversed, and the fabric run off. The pieces should then be run on tail-end-first, and the steaming and cooling processes repeated. This method obviates any excess of glaze at either end of the piece. As in the crabbing process, undue tension should be avoided. Wrappers should be scoured occasionally in order to prevent embossing, slight watering, and the cross-twilling of serges and similar classes of goods.

Watering of pieces during pressing is sometimes caused by slippage, but more often by too great a pressure being placed on the goods. In the case of poplins, reps, and light dress goods, which require little handle or finish from the actual pressing, use of warm press papers has been found to be advantageous. The pieces should be run in in the usual manner in warm press papers, and placed in piles. They should not be put in the press or subjected to any pressure other than their own weight. When the fabric is known to be liable to watering, it is advisable not to put more than four pieces in a pile. If goods of this description become watered after the final pressing has taken place, the fault is easily remedied by running them over the steaming-box and putting them in warm papers for a few hours.

Coatings and other fabrics which require a heavy pressure to obtain the desired finish are not as susceptible to watering as are poplins and reps. The former class of goods, however, generally needs a double pressing in order to remove any raw cuttle marks which may be formed during the first pressing. If the finisher will steam the fabrics between the two pressings, he will, as a rule, cure any watering which has occurred.

*The cot box, a machine for handling matted fleeces*



*Courtesy P. & C. Garnett, Ltd., Cleckheaton, England*

# *Matted Fleeces*

## OPENED BY NEW OPERATION IN WORSTED MANUFACTURE

***By Webster Norris***

AN IMPORTANT process in the preparation of raw wools for top manufacture is that of "opening out." This is especially vital in the case of long and medium-long wools of 40s quality and below which are prepared on gill boxes or preparers previous to combing. In Colonial crossbreds there is often a considerable amount of "cotty" wool—i.e., matted fleeces—and for the satisfactory working of this material, there must be a preliminary operation to get the wool into a suitable state for preparing. If the cotty wool is passed through the preparers, or even through a strong preparer gill box, it may bend or break the faller pins to such a degree that the operation becomes one of considerable expense. A willow is not an adequate remedy, as the tendency may be to break the fiber; and this is a serious drawback in worsted-yarn making, particularly when luster yarns are being made.

In England there has recently been introduced into the industry a new cot-opening process which has undergone practical tests, having run continuously and dealt with exceptionally cotty and matted fleeces. Several advantages are claimed for the operation; and by handling it carefully and intelligently, good results are achieved.

Wool well treated and opened out in its early manufacturing is half combed, and this saves a great deal of wear and tear on the comb circles, besides insuring a better sliver, free from neps, etc. Wool of a cotty nature which has had no preliminary opening and is passed through an ordinary preparer box, often causes faller locks. Bad work results from this trouble, if from no other reason than that the wool is cut out in order to release the fallers. Moreover, the stoppage of the machine seriously hinders the work in process. Preparers are run in series; and when one machine stands, the set must stand. By dealing efficiently with cotty materials in the early stages, risk of subsequent trouble is eliminated, and waste and loss in production in the processes are prevented. When the rollers on preparers become choked on account of cotty or matted materials, delay is caused and again there is a loss of time and material. In the scouring process cotty wool will often choke the squeeze rollers, thus stripping the roller lapping.

A machine known as the cot box is employed. This is especially constructed for opening up exceptionally cotty and matted wools, and its place in the order of processing is before the scouring bowl. It is built on similar lines to a preparer gill box. Instead of saddles, cams, and fallers, specially made porcupines are used. These consist of rollers holding short teeth-like points which pierce the cotty wool as it is passed through the porcupines. The six porcupines (three on top and three at the bottom) are like garnett rollers with thick and large-sized wire. These are intersecting and are set about $\frac{3}{4}$ in. apart, insuring that all the wool is evenly treated. The porcupines are designed to run at variable speeds. The first two run at a minimum speed, the next two are arranged to run slightly faster, and the third pair the fastest of all. The work of opening up the wool is shared by the three pairs of rollers.

The draft is controlled by the speeding of the back and front rollers, which are fluted. Each porcupine has pressure applied by means of a screw and spring, which are adjustable.

The material to be treated is fed on to a feed lattice, which delivers it into the nip of the back rollers. As the material passes through the back rollers, the first pair of porcupines come into operation. The ratch is set according to the length of the fibers, thus eliminating any tendency for fibers to be broken between the first pair of porcupines and the back rollers. The second pair revolves slightly faster and takes up the material, passing it forward to the third pair. These, traveling slightly faster, further open the wool and pass it to the front rollers. The latter deliver it to a traveling lattice. The cotty and matted pieces are now broken up, and the wool is ready for the scouring bowls.

With this process many difficulties should be overcome. The number of broken fibers is reduced to an unobservable minimum. There are no saddles, cams, or fallers to get out of order—usually a costly item of repair in a combing plant. I believe that a saving of approximately 50% is realized in repairs and general wear and tear of preparing machinery.

Firms handling luster wools and crossbreds periodically find that cotty and matted fleeces are passing through the scouring bowls and into the preparing boxes, where they often bend and split the pins. These bent pins form neps by curling the fibers and causing them to ride forward unopened. The introduction of the cot-opening operation prevents this taking place, and the resultant top sliver is delivered in an open and free condition, with a minimum of neps and with fibers better arranged in parallel order.

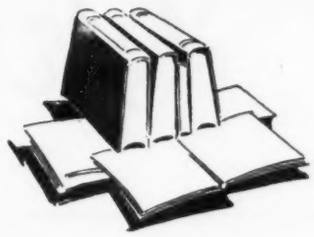
# NEW PUBLICATIONS

WHAT IS TECHNOCRACY? By Allen Raymond; Whittlesey House, McGraw-Hill Book Co., Inc., New York; $1.50.

Technocracy is still the year's best headline. In this book, Mr. Raymond attempts to answer questions everybody is asking about technocracy—and to answer them impartially. He explains the ideas of the movement, describes its background and that of its leaders, treats at length of the personality and career of Howard Scott, discusses the sources of technocratic theory, and presents the criticisms which have been directed against it. The book does not pretend to be an economist's appraisal of this enterprise, but rather a straightforward record of all the essential facts that a good newspaperman could uncover about it. Such a book is probably the most valuable type that could be published at this time.

MANUFACTURING MARKET STATISTICS; prepared by Bureau of Foreign and Domestic Commerce; obtainable from Government Printing Office, Washington, D. C., or district offices of the Bureau; $1.00.

This is a compilation of basic marketing data especially designed to aid sellers of products consumed in the manufacturing industries to locate their markets more accurately and estimate probable demand. A prominent feature of the new study is a plant-location section showing for the first time on the basis of the 1929 Census of Manufactures the location by State and county of more than 200,000 manufacturing



concerns representing a market for $36,000,000,000 worth of materials, classed in 326 primary industry groups. It presents in compact, readily usable form the Census data for all industries showing such market indicators as number of plants, wages and salaries, horsepower of equipment, material cost and value of output, by States, cities of 10,000 population and over, and major industrial areas.

•

## Business Literature

**Conveyors.** Stephens-Adamson Mfg. Co., Aurora, Ill. Illustrated catalog showing the design and operation of new "Redler" conveyors for handling materials such as coal and cement.

**Cleaning Devices.** Parks-Cramer Co., Fitchburg, Mass. December issue of "Fog Horn" describing the traveling cleaner for blowing lint from spinning frames and other cotton mill machinery.

**Drive Transmission.** Reeves Pulley Co., Columbus, Ind. Booklet illustrating applications of automatic variable speed control to various types of industrial machinery.

**Relays.** General Electric Co., Schenectady, N. Y. Opportunities for improving systems by use of high speed, time induction and other relays explained.

**Turbine Blowers.** L. J. Wing Mfg. Co., New York. Data, photographs and engineering information telling how Wing blower installations reduce boiler operating costs by burning low-cost fuels.

**Transmissions.** Lewellen Mfg. Co., Columbus, Ind. New illustrated catalog describes Lewellen series 100 fully enclosed transmissions; lubrication, belt tension adjustment and other features explained.

**Magnetic Clutches.** Dings Magnetic Separator Co., Milwaukee, Wis. Bulletin on installation and use of magnetic clutches for special and general power transmission applications; performance data tables included.

**Motors.** Reliance Electric & Engineering Co., Cleveland, O. Tells how maintenance costs due to motors being exposed to dirt, fumes, etc., may be reduced by use of Reliance fully-enclosed fan-cooled induction motors.

**Drives.** Reeves Pulley Co., Columbus, Ind. Tests conducted on variable speed spinning and twister frame drives in actual mill installations.

**Oiling.** The Lunkenheimer Co., Cincinnati, Ohio. The construction, application and operation of new type bottle oilers.

**Brick.** General Refractories Co., Philadelphia. Bulletins describing characteristics and application of silicon carbide brick for boiler and industrial furnaces.

**Bleaching.** General Dyestuff Corp., New York. Bulletin No. I.G. 685 on "Igepon T in the Bleaching of Wool."

**Welding.** The Linde Air Products Co., New York. Booklet describing physical and welding characteristics of new bronze patented welding rod.

# BUSINESS NEWS

RIGGS & LOMBARD, INC., Lowell, Mass., manufacturers of textile wet-finishing machinery, announce the appointment of Paul A. Merriam, 52 Moorland Ave., Edgewood, Providence, R. I., as their representative in Rhode Island and adjacent territory. Mr. Merriam has had a wide experience in the finishing of textiles, particularly cottons and rayons, having been successively assistant engineer, resident manager of the Cedartown branch, and for the last five years chief engineer in charge of all engineering work at all seven plants of the United States Finishing Co. He is chairman of executive committee of Textile Division of the A.S.M.E.

WESTINGHOUSE ELECTRIC & MFG. CO. has formed a new Air-Conditioning Department which will coordinate the company's various existing activities and project its future activities in this field.

VEEDER-ROOT, Inc., announces that its southern office at Greenville, S. C., is now in charge of Edwin Howard, who thus becomes its southern sales manager. Mr. Howard was for many years southern agent for the Fales & Jenks Machine Co. His new connection will not interfere with his present machinery and equipment lines which he will continue to handle as in the past. He will be assisted by Robt. W. Bailey, formerly with J. E. Sirrine & Co., who will cover the southern territory on the sale of Veeder-Root counting devices. As announced in October, Veeder-Root sales activity in the South will be under the direct charge of Arthur E. Kallinich.

MAX AMS ENGINEERING CORP., Bridgeport, Conn., announces that the J. J. Krehbiel Co., Inc., of New York, is now its exclusive domestic and foreign sales agent. Krehbiel has for many years specialized in the selling of foreign rayon machinery and equipment. Centralization in the one agency of both foreign equipment and the Ams line will provide a focal point for new developments from both sides of the Atlantic.

LAUREL SOAP MFG. CO., Philadelphia, is now represented by the American Brokerage & Warehouse Co., 505 S. Cedar St., Charlotte, N. C. This is the second Laurel distributing point in the South, the other being in Chattanooga, Tenn.

EDWARD BAUSCH, president of the Bausch & Lomb Optical Co., was the guest of honor at the annual dinner of the Society of the Genesee, an organization of men and women who have lived in the Genesee Valley of New York State and who meet each year to honor an outstanding neighbor and renew old friendships.

J. H. CONNORS, vice-president and general manager of B. F. Goodrich Co., mechanical goods division, has been reelected by acclamation to serve a second term as chairman of the Mechanical Goods Division of the Rubber Mfrs. Assn.

CORK INSULATION MANUFACTURERS ASSOCIATION has appointed Herbert B. Coho as business manager. Headquarters are maintained in the Grand Central Terminal Building, New York.

American manufacturers of vulcanized fiber-head bobbins and associated companies have just begun a series of advertisements in textile publications as a cooperative effort. The purpose of the campaign is first, to point out to the textile industry that its advantage lies in a policy of using American-made products in American mills; second, to show the weaver that yarn shipped on American-made fiber-head bobbins results in better finished goods and economy in mill operation.

GENERAL ELECTRIC CO. has consolidated its turbine sales department with its central station department as a division of that department. Elmer E. Gilbert, manager of the turbine sales department has retired and R. B. Beale, former assistant manager of the turbine sales department, succeeds Mr. Gilbert with the title of manager of the turbine division.

A. FRENCH TEXTILE SCHOOL, Georgia School of Technology, Atlanta, Ga., of which C. A. Jones is the new director, has installed a 16-spindle W. D. Huse bottle-bobbin winder for converting rayon and fine cotton yarns into knitting and weaving form; a complete oil spraying unit (made by the Texas Co.) in the picker room; and has reconditioned its combing equipment.

INDUSTRIAL PLANTS CORP., New York, is liquidating the foundry, machine shop and pattern shop of the Cresson-Morris Co. of Philadelphia, manufacturers of machinery and transmissions.

**THIS DEPARTMENT—**

*offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in December is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "Textile Night Schools for Workers" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.*

▼

# Overseers'

## TEXTILE NIGHT SCHOOLS

"SOME of the young fellows in the mill have asked me why we don't start evening classes for those who want to study textile problems," remarked Superintendent Chase as the overseers' preliminary conversation subsided. "Several of the larger mills in this section, as you know, have organized evening classes for their workers who are ambitious to get ahead by improving their knowledge of textile manufacturing. We have never gone into this sort of thing largely because our men didn't show sufficient interest when casual inquiries were made from time to time. With conditions as they are in the industry, and everyone realizing more and more the need of increasing his knowledge of basic principles behind his everyday work, I wonder if we would not find at this time an enthusiastic response to the proposal to arrange for evening classes. What do you think of the idea, Bill?"

"Experience is the best teacher in the world," Bill replied. "Therefore, I am not so keen about teaching the young fellows a lot of theory. They will begin to think they know more about the business than the overseers, become impatient and feel that they should get promotions before they are able to handle bigger jobs. The young man who really wants to improve his knowledge, aside from the many things he can learn in the plant from actual work and by observation, will find enough books in the library and plenty of things in the textile journals to keep his mind occupied. Furthermore, overseers are not school teachers and most of us wouldn't have the time to spend conducting classes in the evening.

### *Encouraging Thrift Among Workers*

*Editor, Overseers' Round Table:*

There is a difference between dictating to the employees how to spend their money and encouraging them in the ways of thrift. I believe in encouraging them to save. My suggestion would be for the mill to organize a savings club and pay the employees interest on their savings at the rate of 5%. It could be worked in the following manner:

Distribute cards among the employees inviting them to participate in the savings club and have them state on these cards the amount to be taken from their wages every week for deposit in the savings club. A receipt should be placed in the pay envelope after each deposit, showing the amount of that week's deposit, as well as the total amount saved to date. A few days before Christmas, checks should be sent out to members of the club and it should be organized for another year. Of course everyone would have the privilege of withdrawing all or part of their savings at any time during the year.

Saving is a habit that must be developed and one that requires time. Each year there will be more and more workers to join the savings club. Sending out the checks a few days before Christmas will have a good psychological effect. However, there will be many who will redeposit most of their savings at once. A family with a small bank account is an asset to the mill and community; a thriftless family is often a liability.

P. H. H.

*Editor, Overseers' Round-Table:*

It would be a wonderful thing for all concerned if Superintendent Chase could lay down the law and say that each employee was to save a certain amount of his pay weekly—but such a thing is impractical. The workmen themselves usually don't know how to budget their incomes, but any attempt on the part of outsiders to do it for them would cause a great deal of trouble.

At the present time, especially, there is a great deal of dissatisfaction and argument between the workmen and the bosses. The workers now even claim that they are being bossed too much, being told just how to live, and why they should live that way. They want more freedom and independence and any further restriction on their liberties would cause more trouble than the results would warrant.

The idea of encouraging thrift, however, is a splendid one in itself and something along this line should be done. It might be possible to speak to each employee individually and to make suitable suggestions, telling him about worthwhile investments, suggesting how much he should bank weekly, or where he can get the most for his money. It might even be a good idea to issue a monthly bulletin making comments about the different ways in which a budget might be helpful.

When it comes actually to taking so much of the worker's money and banking it for him, however, although sometimes a good thing for the employee, the hard feeling caused by it makes the plan worse than worthless.

WILL HERMAN.

*Editor, Overseers' Round-Table:*

Every individual resents interference with his or her personal finances, and more especially by an employer. All of this we grant, but as an overseer and superintendent I have found on various occasions that an employee, when properly approached, is eager for aid. The resentment usually comes from what is incorrectly interpreted as "dictatorship," but aid that is rendered in a personal, friendly and helpful manner is generally welcome.

How shall this be accomplished? Why not first lead up to the idea by use of the mill paper or the bulletin board? Then have a committee formed to deal with each employee individually. The committee should be composed of men carefully picked as to sincerity, understanding, diplomacy, and standing in the community. Every overseer is not qualified for this kind of work.

The committee would then meet by special appointment and consider individual cases. Decisions should be governed to

# Round-Table

## FOR WORKERS

It would be too expensive for the company to employ competent teachers from the textile schools. The idea sounds good, but it will not actually get the results claimed for it, and I am opposed to the plan."

"Young men, and some of the older ones, are keen to prepare themselves for better jobs and should be helped along," Pete spoke up. "Many of these boys didn't have an opportunity to finish high school, much less go to college. Practical mill problems, textile mathematics, and other appropriate subjects should be taught. These courses will give the young worker a better idea of his department's place in the general scheme of things. Study of this kind also gives anyone a broader vision, encourages efficiency in his everyday work, and gives him a new confidence in himself. The mill will profit as the small amount of money that the school might cost for this educational work should help build a stronger organization. The expense could be kept down by having the more experienced overseers and one or two textile school graduates conduct the evening classes. The proposal has my enthusiastic support and I would like to see the work started."

**► Do you believe that evening classes for mill workers are valuable, or do you think the time and money expended for them is out of proportion to the benefit received by the mill? What would your answer to Superintendent Chase's question be?**


## SUMMARY

STIMULATING THRIFT. *Contributors expressed widely different opinions regarding the wisdom of employers taking steps to encourage their workers to live within their incomes and to maintain savings accounts. Approximately 57% of the letters were in favor of the mill management taking an active interest in this question. About 31% were opposed to the management taking any interest whatever in the personal financial affairs of employees. Another group, represented by 12% of the letters, while opposed to employers exercising influence directly on the spending habits of the workers, favored the stimulation of thrift-consciousness among employees by impersonal, educational methods.*


▼

*Editor, Overseers' Round-Table:*

I think it would be as inadvisable for a mill organization to try to regulate the spending habits of its employees as it has been impossible for the National Government to dictate what the people should or should not drink. To keep tab on the spending of every employee in industries of present day size would mean putting the burden of the job on the foreman. This would require a certain amount of time that should be applied to more productive work and I believe that in many cases it would be detrimental to harmonious foreman-worker relations.

In my estimation, thrift work of this kind should be handled by the personnel department and should find expression in the form of educational work, posters, and the use of simple family budgets that, perhaps, could be supplied by the company.

R. C. BOKUM.

*Editor, Overseers' Round-Table:*

The encouragement of thrifty habits among employees, if extended by the employer, is seldom appreciated. Too frequently the employees seem to get the idea that the boss is trying to be a dictator rather than an earnest advisor. The fixed rule of promotions for the thrifty only would be the best plan to promote thrift and saving, as almost everyone wants to be promoted if he thinks he has the necessary ability to fit him for the higher job.

Where an employee has met with an unforeseen calamity, or unexpected financial reverses, he should be business-like enough to try to clear up his indebtedness as rapidly as possible. After doing this he should proceed to save that portion of his wages that he has budgeted to the *reparation fund*, then he will be prepared to face such experiences again if they should come along.

The mention of loan sharks and their excessive rate of interest is a timely subject as these money lenders are "reaping a harvest where they have not sown."

F. L. BYRD.

some extent by the duration of employment with the mill and the financial aid desired. If possible, after budgets are determined, an attempt should be made to place the employee on his feet by granting a loan to pay off his outside debts. Then see that each week's pay is devoted to keeping up the budget and to the payment of obligations to the mill.

Funds may be raised by entertainments and plays for which the public is charged very little. Such funds would go into an established treasury for use in helping deserving workers. There might also be assessments and other ways of raising money so the burden would not fall too heavily upon the company.

W. E. H.

*Editor, Overseers' Round-Table:*

Thrift among employees is something that has been sadly neglected by mill managements. Moreover, the majority of employees feel that their earnings are too small to think of saving anything. Why couldn't the employers sponsor a move to stimulate the workers to budget their incomes as closely as possible, including a certain amount for savings, and urge every employee to take an interest in this movement? Operatives would be advised that their thrift would be taken into consideration when promotions were being decided upon.

These savings could be handled through the office and formed into a pool from which employees could borrow small amounts at a reasonable rate of interest, thereby avoiding the loan sharks who thrive on the industrial worker. A system of this kind would also keep a great many of the employees from becoming charity cases when the mill is forced to curtail operations for a short period.

If a proposition of this kind is handled correctly, I believe that most of the people will see the advantages and not think that the employers are trying to tell them how to spend their money.

G. E. GREGG.

# QUESTIONS AND ANSWERS

## Unsatisfactory Twill in Woolen

*Technical Editor:*

*I am inclosing two samples of 24-oz. cloth. The sample numbered "1" is what we want, and the one numbered "2" is the best we have been able to make. You will note a slight difference in the angle of the twill and the space between the twill. So far, we have not been able to remedy the difference. What is your recommendation in laying out a piece of this cloth? Should it be laid wide or narrow? I should also like to know if there is any definite method of picking out the weave of such cloth. If so, will you tell me how? (7969)*

An analysis of the two fabrics shows the following: No. 1 has 52 ends and 58 picks per inch finished. No. 2 has 46 ends and 59 picks per inch finished. The difference in the number of ends per inch makes the difference in appearance of the twill. This cloth should be at least 74 in. in the reed, to finish 54/56 in. To pick out the weave on fabrics of this nature requires experience. The best method is to burn off the nap until the weave is easily distinguishable, scraping off the burnt wool from the cloth surface. Determine how the face and back picks are woven, whether pick and pick or two face and two back picks, etc. Then draw out the weave and fit it together after the motive used in the weave.

▼

## Finishing Binding Cloth

*Technical Editor:*

*I am inclosing herewith a sample of binding cloth, and shall appreciate it if you will furnish me with details as to the formulas and equipment necessary for duplicating the finish. The goods have to be 100% blind, as they are subsequently gummed, and must finish 0.00375 in. thick. The gray goods have a count of 44 x 40. The dead finish on one side and the high gloss on the other are essential; the smoothness is also important. (7907)*

After dyeing, these goods should be dried to width, bringing the filling threads as nearly straight as possible before starching. One leading finisher in this country uses a special filling mangle consisting of a dope box and a brass knurled roll which deposits a film of dope or starch on one side of the goods. From this roll the goods pass directly between a series of knives—two on the filled side and three on the unfilled. They then go directly over a sweat roll—that is, a brass water-cooled roll—directly onto a long tenter frame. The finishing ranges are built in any length from 120 to 200 ft., with a hot-air drying system, housing, etc. The range is equipped with a winder at the delivery end. The production in yards per hour required governs the length of the tenter installed. The heating system for the tenter housing is regulated in such a manner that the first third of the length of the tenter housing can be subjected to a regulated air pressure. This is due to the fact that too great

an air pressure may disturb the filling before it sets.

An approximate formula for finishing this fabric is 120 lb. white corn dextrin, 75 lb. potato starch, and 10 lb. paraffin wax emulsion. When properly cooked with water, the mixture should make 100 gal. It may be necessary to give two or possibly three runs. However, if the goods are stretched to somewhere near gray width before filling, the above method of back-filling is usually installed with the idea of not pulling down the width of goods too much. This particular type of filling machine is designed to fill the open places in the weave without covering the yarn.

After the goods are filled properly, they should be slightly dampened, then conditioned. Next they should be smoothed by means of a heavy five-roll calender with three heated metal rolls and two pressed rolls, preferably of cotton or combination stock. After calendering over the five-roll calender, they are friction calendered over a heavy three-roll friction calender, preferably operating under hydraulic pressure. The friction calender required for this class of work is not the ordinary type, such as is used in the finishing of regular cotton goods, but preferably is a heavy type with considerably higher friction. For instance, the average type friction calender will operate at from 58% to 75% higher speed on the top chilled iron roll, whereas on this fabric a calender with 100% friction is preferable.

▼

## Lubricating Rayon Yarn

*Technical Editor:*

*We have a rayon yarn which is giving us trouble in quilling, and this is due to the nature of the yarn. It creates so much friction that it pulls apart after running a while. But by applying a little camphorated oil, some of this friction is eliminated. What we are anxious to know is whether some other oil which is not so expensive could be applied by spraying the skeins. This method would result in the oil being on the yarn after it was wound, which would make it run smoothly over the guides on the quilling machine. What oil would you recommend We want an oil which is absolutely harmless. (7961)*

There are several types of oils on the market which can be employed for lubricating rayon. The best one to use is determined by the fabric you are making and the subsequent treatment the fabric is to receive. If the goods are to be dyed, you should use an oil which can readily be scoured from the goods before they are dyed. If the goods are not to be scoured but are to be dry-finished in the same condition as they are woven, water-white, colorless, tasteless neutral mineral oil with a viscosity of about 85 seconds Saybolt at 100° F. can be employed. Some of these oils are imported, while others are made from Pennsylvania crudes.

As a rule, spraying is not recommended for applying these oils, as this method may give uneven results. Instead, they are placed in an emulsion trough in the quilling machine or coning machine in such a way that the yarn passes over the top of a roller partly submerged in the trough. This contact can be adjusted by means of a pigtail on a screw, so that a greater or less amount of oil can be applied as desired. Sometimes a felt wick is substituted for the roller where only a very light oiling is needed.

▼

## Defect in Denim

*Technical Editor:*

*I am inclosing herewith a sample of cloth in which you will notice a wavy effect. This is a 2.20 blue denim of the following construction:*

| | Warp | Filling |
|---|---|---|
| Lap | 16 oz. | 16 oz. |
| Card Sliver | 70 grains | 60 grains |
| Finished Drawing Sliver | 70 grains | 60 grains |
| Slubber Roving Frame | 40/100 | 60/100 |
| Intermediate or Fine | 1.20 - 2.40/100 | 2 hank |
| Spinning, Single Roving Yarn | 1.20<br>8.30s | Double 2 hank<br>11s |
| Production of Cards | 16 lb. an hour for warp<br>11 lb. an hour for filling | |

*Will you kindly inform me why the fabric is so wavy? Can the fault be traced to the carding department? Is it due to an uneven or cut yarn? What is your general opinion of this fabric? It is a new style for us. (7952)*

While it does not appear likely that warp tension through a worn pallet or loose brake had anything to do with this imperfection, it might be well to check this. Also, the pick-gear stud might be examined for high and low places.

In our opinion, however, a filling-yarn condition is responsible for the wavy effect. Upon examination of the filling under a heavy glass, you will notice that in places the yarn is of extremely soft twist and of large diameter, while in other places the yarn is of small diameter. Therefore it is quite natural that the twist ran into the thin places. Thick and thin places in the filling yarn would cause the weave effect. The length of these thick and thin places makes us think that the imperfection was made prior to spinning. It could be made at numerous places, but we believe that if the drawings are examined in order to determine if the sliver is being cut, or the roving frames examined for stretched roving, the cause of the unevenness will be discovered. More specific advice cannot be offered without inspection.

That part of the sample without the wavy effect appears to be a satisfactory piece of denim; and after correcting the uneven filling yarn, no trouble in the manufacture of this material should be experienced.

# QUESTIONS AND ANSWERS

## Licker-in Speed

*Technical Editor:*

*Although sometimes we use short cotton and at other times long, we maintain a licker-in speed on our cards of 400 r.p.m. I should like your opinion as to whether we are in error in not changing our speed to meet varying conditions. The heaviest lap we use is 12 oz., but of course we lighten this for finer numbers. I am particularly anxious to have your opinion as to whether or not a heavy lap and light feed are preferable to a light lap and heavy feed. For ordinary numbers we employ a card draft of about 120. (7967)*

For many years a licker-in speed of 1,060 ft. per minute was considered standard for all weights of lap and all classes of cotton. Today, however, there are many mills which make it a practice to vary their licker-in speed depending on the mass of cotton delivered in a unit of time by the feed roll of the card. This is a procedure which is quite rational, and it is surprising that this detail of card operation has not been more extensively adopted.

It is best modern practice to change the licker-in speed to meet the varying conditions of lap weight. The heavier the mass of cotton fed, the higher the licker-in speed required to detach the fibers properly from the mass in a manner to prevent the formation of lumps in the web.

We note that you do not make a lap any heavier than 12 oz. This is a very conservative weight of lap. A licker-in speed of 1,000 ft. per minute should give very good results. If the weight of the lap were decreased to 11 oz., we are of the opinion that a licker-in speed of 875 ft. per minute would be satisfactory and would secure fine detachment of the fiber.

In so far as a heavy lap and a light feed are preferred to a light lap and a heavy feed, we should say that there has been a great deal of discussion on this very point. The best results are obtained when a conservative average is taken. For instance, a 12-oz. lap producing a 50-grain sliver will certainly give better results than a 14-oz. lap or than a 10-oz. lap. We consider a draft of 120 too high. For fine work a card draft of 105 to 110, with the lap adjusted accordingly, gives better carding. In fact, a draft of 120 is likely to produce a web which is far from our idea of what a good web should be.

▼

## Warp Streak in Satin

*Technical Editor:*

*We are enclosing a swatch of five-leaf satin that shows an irregular warp streak, herringbone effect, running lengthwise of the goods. Kindly give us your opinion as to the cause of this streak. (7972)*

Examination of the fabric indicates that several causes contributed to the streakiness. It is our opinion, first, that the tension in weaving was not uniform. There are a number of places where the ends have woven in loose. We also believe that the harness was not set properly. In making satins of this construction, the shafts must be correctly adjusted. In addition, we are not satisfied with the finishing. It appears to us that the fabric was stretched excessively on the frame and that in this way the irregular warp streaks were made more pronounced.

▼

## Light Waste Ends on Woolen Card

*Technical Editor:*

With reference to the discussions appearing recently in TEXTILE WORLD on fine side ends and the Apperly feed, it may be possible that the carders having this trouble do not have the proper change gears on their Apperly travelers. About six years ago I attached six new Bates travelers on my finisher cards and could not overcome fine side ends until special gears were made. The regular change gears were 28, 29, and 30 teeth. By using a 26-tooth gear the stock was laid perfectly straight on the table and the trouble was overcome. The Bates manufacturers said this was the first complaint they had had and in the future they would supply 26- and 27-tooth gears with new machines. I find the broad-band type of feed very satisfactory. CARDER.

▼

## Rust Stains in Linen

*Technical Editor:*

*We are enclosing two samples of linen fabric—one from a piece as it came from the finishing plant, and the other from a piece which we have put through a shrinking process. You will note that the piece which we have reprocessed is badly stained, while there is a less noticeable discoloration on the other sample. Will you kindly advise us as to the nature and cause of the defect? (7904)*

Examination of the samples shows the presence of iron stains in both cases. It is difficult to state the exact cause of the stains; but it is our opinion that some of them occurred in the manufacture of the fabric and others in the finishing. We see no indication that any were caused by the shrinking process.

A stain near the selvage of the piece which has not been shrunk is apparently on the warp. This may have come from the warp size, as rust in the water pipe, whereby a small particle became fastened to the warp. Again, it could be due to a rusty drop wire, harness, heddle, or reed. The stains near the bottom (which, by the way, show more prominently when the cloth is wet out) do not seem to be confined either to the warp or filling. They were evidently put there after the weaving. They could be due to the loom fixer's hands being oily or dirty, to an incompletely removed oil stain, or to contact with some iron object. You will notice also that some of the warp threads are large and sluggy. These show tinges of iron. This must be due to rusty reeds, combs, heddles, or some iron object over which the yarn was dragged. There are a few straw-colored specks in the slugs, but these come from the flax. Other of the stains have the appearance of kier stains, such as are encountered in boiling-out cotton fabrics.

If the goods are steeped for 30 min. in a 5% solution of oxalic acid, followed by a careful wash to remove all traces of acid, the stain completely disappears. The steep should be cold (not over 100° F.), and the goods must be completely submerged at all times while in contact with the oxalic acid.

▼

## Fulling Sweater Cloth

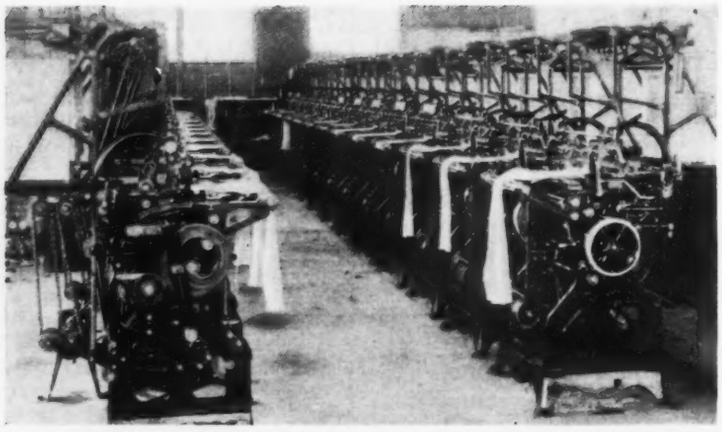
*Technical Editor:*

*Kindly outline the methods employed in fulling worsted sweater cloth and angora sweater cloth. (7928)*

The methods employed in fulling worsted sweater cloth are much the same as for any other type of knitted fabric. The first method is as follows: The goods are entered in the mill, two pieces in a string, and run in four drafts. The ends should be sewn the entire width, making a complete bag. When the goods have been tacked, the goods are wet out with a solution of soap or oil. The amount of soap and alkali, or fulling oil, needed depends on the weight of the cloth, as well as the quality of the yarn and the type of oil which has been used in preparing the stock. The amount of fulling required can only be determined when the weight of the fabric is given, as well as the desired weight and character of the finished fabric. As a rule it is not necessary to have a heavy-bodied soap; but on the other hand the solution should not be too thin or watery. In the first case, freezing and mill wrinkles may result, while in the second, a thin sleazy fabric will be obtained.

The second method is to wet out the goods in the washer with the fulling solution, run for about 20 min., take out, extract, load into the mill as described above, and add a weak solution of oil or soap when fulling begins. In this way the goods are thoroughly wet out, the oil in the stock is thoroughly emulsified, and the spent liquor is extracted. This insures a good emulsion for fulling, and at the same time makes certain that the goods are wet out evenly, thereby avoiding the uneven fulling which is common in this class of material. The drafting of the goods in a mill is dependent on the length of time which it is desired to full, as well as the weight given in the grease, to obtain the desired shrinkage in finished weight.

Angora cloth is handled in much the same manner; but requires more attention on the part of the operator. This type of cloth is often fulled after dyeing in a weak solution of acetic acid, then is washed in the washer and dried in the usual manner.

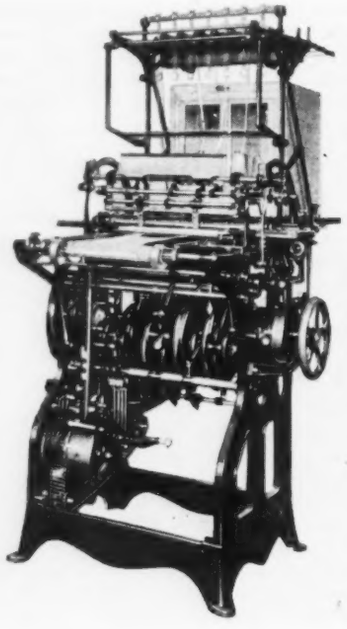


## Single-Head Full-Fashioned Hosiery Machine

IN the face of a trend toward an increasing number of heads or sections per full-fashioned hosiery machine, the Wildman Manufacturing Co., Norristown, Pa., has surprised the knitting industry to no small degree by introducing a new machine having only one head or section. Contrary to early rumors regarding this machine, it has not been developed with the object of making it easy for a man to set up a machine in his cellar and begin manufacturing full-fashioned stockings in a small way, and it has not been introduced to assist manufacturers of other products to begin producing full-fashioned stockings as a side line. On the contrary, the builder feels that the single-head machine belongs in the full-scale full-fashioned mill where a knitter may be assigned his full complement of heads and all operations may be carried out on regular production schedules. For example, the smallest economical layout, it is said, might be 60 leggers with three knitters, 20 footers with two knitters, and three toppers. An exception might be the use of one or two of these machines for turning out samples.

One motive underlying the trend toward more heads per machine has been the desire of the mills to obtain the greatest production for the least investment—that is, to establish a large capacity for turning out stockings with as little installation cost as possible. A related, but stronger, motive has been the necessity for increasing the production per knitter—something which could not be done by assigning to a knitter in addition to his own machine one or two sections of another machine. These motives have until recently been accepted as sound without question; but the Wildman organization has found, it reports, that some important factors with respect to the second motive have been overlooked.

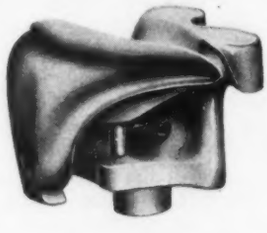
To begin with, however, it must be observed that the new single-head machine is not merely the usual type of full-fashioned hosiery machine made in one section. It has been redesigned to give twice the production of a head of the larger machine. There are several new features, most of which we shall endeavor to describe later on, but the improvement which is most important to the single-section idea is in the yarn carriers and the method of driving them. These carriers consist of tiny steel tubes attached to long flexible strips or bands of steel. Each band turns at rollers on both sides of the machine, the ends meeting at the back in a small metal clasp with a finger extending downward. A small carriage under the bands at this point travels back and forth across the machine.



Pins are raised and lowered in this carriage automatically by the links of a chain. Raised pins catch the clasp of the band and move it back and forth, thus giving a traverse to the yarn. All obstructions, such as carrier rods, etc., above the carriers and below the yarn guide rods at the top of the machine have been removed. The result is that all yarn changes are automatic and require no setting or attention from the knitter. In fact the only manual operations required of the knitter on the legger are turning the welt and racking back. On the footer there is only racking back.

The lightness of the carrier mechanism eliminates all rebound at the end stops. The narrowing mechanism is also remarkably light, with the result that the knitting may be conducted at maximum speed throughout the length of the stocking. The maximum speed, as recommended thus far, is 90 courses per minute on 42-gage, and 86 courses on 48-gage. In the case of the latter gage, which is believed to be particularly adapted to the single-head machine, a leg for a 1,600-course stocking will be knitted in 20 to 21 minutes. In the case of 42-gage a conservative production for a 1,600-course stocking is reported to be one dozen pairs of legs and three dozen pairs of feet per head in a day of nine hours.

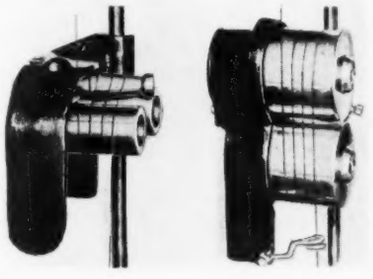
With the elimination of the manual operation of setting the yarn carriers, which of course is effective on the multiple-head machines for all the heads at once, the way is paved for a disintegration of the larger machines. Turning the welts, topping on, and racking back have to be conducted at each head individually, and the labor is just as much whether the heads are on the same machine or on separate machines. When the operation of the single-head machines is properly staggered, the welts do not need turning all at once, the legs are not completed at one time, and the footers are not calling for leg blanks at the same moment; therefore production continues on practically all heads with the exception of the one on which the knitter is working. Hence, the knitter's work is distributed more evenly over the production time and he is in a position to handle more work. In fact, the knitter on the footer can top on and rack back all himself, and the topper need not leave her bench to assist him, with the result that the production of the topper is improved, since ordinarily 10% of her time is taken up by these operations. Furthermore, machine trouble shuts down only one head, rather than say 24. A jack-head or sinker smash is not likely to damage the machine, as a row of machines is driven from line shaft and in the case of such trouble the belt will slip off the machine pulley. Each head may be adjusted accurately, whereas a large machine has to be set to accommodate the poorest head. Footers and leggers can be assigned to the same knitter in order that he may be made responsible for the complete stocking blanks. Automatic control of the yarn carriers makes it possible for inexperienced knitters to learn the operation of these machines in a relatively short time. The single heads permit considerable flexibility of layout, and it is not necessary to have a building especially designed to accommodate them. Good mechanical balance tends to minimize vibration. Twenty-eight machines in the experimental mill of the Wildman Manufacturing Co., where 80 machines are in opera-



*This is the new "K" shuttle eye designed by U S Bobbin & Shuttle Co. described in our January issue. It is called a sure threader and will shed loops over the back or point*

tion, are being driven by a 3-hp. motor. Thirteen single-head machines occupy the same floor space as a 24-section machine.

The slur cock, jack head, sinker head, and needle bar are practically the same as on the larger machines. The draw-bar or coulier mechanism has been practically eliminated in favor of a reciprocating screw extending across the machine, which drives the slur cock. This screw is driven by a cam on the side of the machine, the arrangement doing away with the bevel gears and the long coulier stroke at the back of the machine. The narrowing mechanism and other parts are so short that they are very slightly affected by temperature changes. The take-up is through a ratchet and spring automatically controlled by a cam to allow for the narrowing of the stocking. The picot attachment goes out of action automatically after the picot is made, and any number of picot courses can be knitted. There are seven carriers on the legger and six on the footer, and the design of the mechanism is such that they can be easily replaced.



## Doubler-Twister Feed Rolls

SEVERAL types of feed rolls for the Model 5B double-twister are now offered by Atwood Machine Co., Stonington, Conn. The correct choice of type is determined by the kind of yarn to be thrown. Small double rolls are illustrated, equipped with the new Atwood "lap-proof" separator, an adjustable roller bearing device that is said to eliminate roller laps. Thread separators of hardened steel or of smooth or grooved porcelains in various shapes and sizes are also available. Also shown are large double feed rolls, which require no separator, because the skew of the rolls provides for the separation of threads.

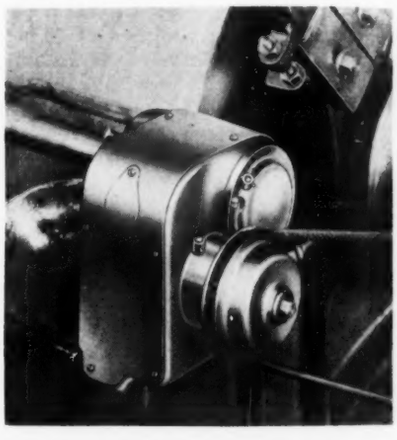
## Rayon Pot Spinning Machine

H. W. BUTTERWORTH & SONS CO., Philadelphia, manufacturers of textile finishing machinery for more than a century, recently announced their entry into the rayon-producing machinery field with a new pot spinning machine which is said to have a traverse action five times faster than that of any previous type of rayon spinning machine. The increased speed of traverse motion, permitting any number of strokes from 15 to 100 per min., is accomplished by a special design of cam mechanism which eliminates crank motions and torque usually found in rayon spinning machines.

The traverse stroke, it is said, can be set to give an open basket wind or any wind desired, such as one with a helix angle. This in turn permits faster treatment of the rayon cake, such as acid washing, de-sulphuring, bleaching, scouring, and soaping, it is claimed, thus saving time because the operation of skein winding is entirely eliminated. The new machine has ball-bearing mountings which not only insure smooth, vibrationless operation, but effect considerable saving in the power required.

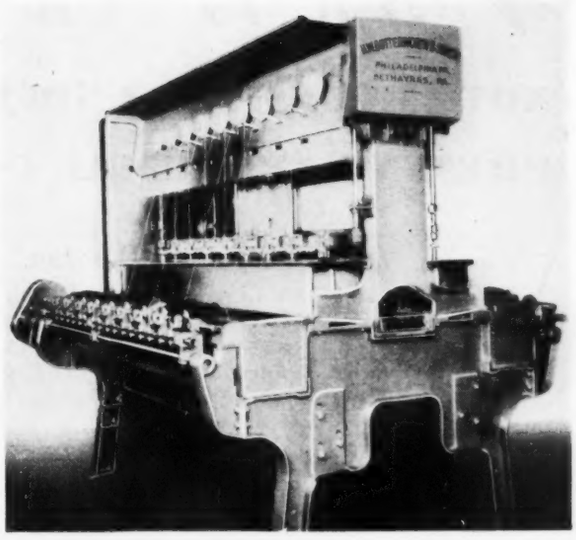
Construction permits the removal and replacement of the Godet wheel while the machine is in operation. The Godet wheel is self-centering. Pumps are for heavy duty and have either three or five pistons. Pump shafts are so arranged that the chemist may make any change of speed desired. Nine pumps are located on each side of a section and any number of sections may be placed together. Motors are high-speed type.

In addition to the new spinning machine, the makers have announced that they will manufacture bobbin spinning machines, mixers, presses (both hydraulic and mechanical), washing and drying units, pumps, and all miscellaneous equipment for both pot and bobbin type machines.



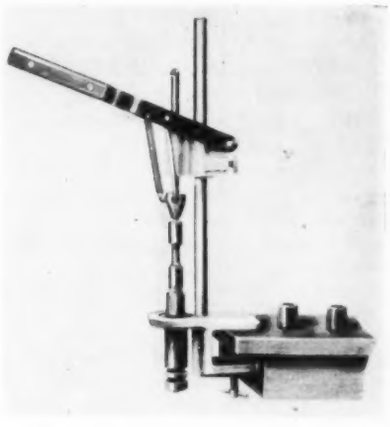
## Improved Comb Box

SACO-LOWELL Shops have introduced a comb box, which will be standard equipment on all their new cards, having as its principal features an improved method of lubrication and precision anti-friction bearings. The working mechanism is lubricated from the outside with a grease-gun at intervals of from one to three months. Thus the trouble from dripping oil or other loss of lubricant is eliminated and, in addition, the comb box is said to be practically noiseless in operation. The entire working assembly is enclosed in a steel case which is so designed that the mechanism may quickly be made accessible for repairs and adjustments simply by the removal of a few screws. This comb box may be applied to old cards.



## Roll-Covering Machine

SONOCO PRODUCTS CO., Hartsville, S. C., has developed an efficient device for covering spinning rolls with Sonoco re-enforced cork cots. The gummed cloth backing construction of these cots has brought about the innovation of several interesting features in the roll coverer because the re-enforced cots have sufficient tensile strength to allow their being stretched on over the roll, a spreading thimble preceding the roll as it is forced into the cot. This method eliminates friction on the surface of the gummed cloth backing by reason of the corrugated roll surface. When the cot is in position as regulated by adjustment, the thimble has passed through the cot and, the tension being released, the cot firmly grips the steel roll. The entire operation requires but a downward push of the lever after the roll and cot are set in position. By dipping the steel roll in water, the gummed cloth backing causes the cot to freeze in position as soon as applied. The machine may be adjusted for covering rolls of various sizes with thimbles of required diameters supplied for each roll diameter used. Adjusting screws can be set to automatically place the cot at any position on the roll desired. The machine, which is simple in operation, is only 22 in. in height.



# *Work-Week Laws*

## NOT IMPOSSIBLE UNDER PRESENT ABNORMAL CONDITIONS

***By Paul Wooton***
*Washington Correspondent,* TEXTILE WORLD

◆ *Abnormal times bring abnormal demands, particularly upon Congress. This thought should be kept in mind in considering all activities in Washington this session. Ideas which a few years ago would have been ignored, may very possibly be enacted into law. This month Mr. Wooton reports on one such idea—the Black 30-hour bill . . . He also brings readers up to date on the domestic allotment plan.*

UNDER ordinary conditions it would be a foregone conclusion that Congress would vote down decisively any proposal under which the Federal Government would be permitted to regulate production within the States. Under present abnormal conditions, however, Congress is impressed with the fact that drastic action must be taken to meet the situation. For that reason it is entirely within the range of possibility that legislation may be enacted along the lines proposed by Senator Hugo L. Black, of Alabama, "to prevent interstate commerce in certain commodities and articles produced or manufactured in industrial activities in which persons are employed more than five days per week or six hours per day."

Many are convinced that the proposal is clearly unconstitutional. Even Senator Black himself admits that it raises an important constitutional question. No legislator has attempted to prove that the proposal conforms with the constitution. Their attitude, however, is to do something and let it take its course before the courts.

Testimony before the Judiciary Committee of the Senate and before the Committee on Labor of the House of Representatives indicates that many manufacturers, including some textile manufacturers, favor the bill.

An effective presentation of the constitutional question involved in this bill was made by James A. Emery, counsel for the National Association of Manufacturers. In part, he said:

"The right to engage in commerce between the States preceded the constitution, was recognized by it and the constitution itself protects against arbitrary regulation. The important thing is that it is a right and not a privilege granted by Congress. Congress has authority to regulate inter-State commerce but the regulation of production is reserved to the States and that power is not enlarged by temporary views of the public interest. The commerce power does not attach to goods merely because they are intended for interstate commerce. The business of the citizen is not submitted to the control of Congress because he engages in commerce. Senator Black's bill plainly is designed to compell each producer to operate under conditions of production, which Congress has no right to prescribe, as a condition to permit the producer's goods to move in commerce. If that naked principle is accepted Congress would absorb completely all the existing police power of the States."

Senator Black apparently shares the views of the technocrats. In his argument for his bill he assumes that labor-saving devices have advanced to a point where it never again will be possible to employ all those who wish to work unless there is a shortening of the work week and the work day. He states that the per-hour output of pneumatic tires has increased 581% since 1914. Eleven men, machine-aided, he continues, now can produce as many tires as 581 men could produce in 1914.

In regard to the length of the work week Senator Black has compiled the following figures for the textile industry: "The average work week per individual in the woolen and worsted industry in 1930 was 49.6 hours. In 1932 the work week was 50.3 hours. The average work week in southern mills was 53.6 hours in 1930 and 55.7 hours in 1932. Card tenders in Vermont worked 57.1 hours. Loom fixers in the South worked 56.7 hours. Loom fixers in New Jersey worked 57.7 hours. Weavers in the south worked 57 hours. Weavers (women) in New Jersey worked 58.3 hours."

*"HELPING" THE FARMER*

*"It has been estimated that the domestic allotment plan would add 25c. to the cost of the average overall work-suit but would add only 7c. to the price of a full-dress shirt."*

Both the Senate and the House committees have been told repeatedly by various witnesses, manufacturers as well as representatives of labor, that one of the greatest evils in our economic system is the fact that voluntary agreements cannot be reached on such matters as hours of labor. There always is a minority that will not be a part of any such plan. Then there always is a percentage of those who agree who will not keep their promise. As a result, it was testified, manufacturers who agree to reductions in hours are then undersold by plants that do not abide by such a restriction. Many manufacturers who have had experience with voluntary agreements and who have found that they allow the public-spirited to be victimized by the unprincipled, are strongly of the opinion that the only solution of destructive competition is the enactment of federal law provided with teeth.

Witnesses opposing the plan told the committee that the proposed law would not make work but would merely divide work opportunities. With hourly wage rates remaining unchanged, the danger in under-employment would be substituted for unemployment. It contracts the earning power of the individual and destroys his liberty to advance himself by his own effort and by this own earnings. It stops the natural shortening of labor hours and substitutes an arbitrary contraction to which our whole economic mechanism must adjust itself.

▼

*The domestic allotment plan:* As this is written great uncertainty exists as to the prospects of the domestic allotment bill which passed the House on Jan. 12. Definite action by the House called the measure forcefully to the attention of the country, with the result that a flood of protests have poured in. It had been assumed that the measure reported out by the House committee had the approval of President-elect Roosevelt. It now seems apparent that he will insist on fundamental changes in the bill.

The action of the House in eliminating protection against jute has increased the difficulties that would be faced by cotton. Under present conditions jute is an important competing material. Were the domestic allotment bill to become a law it is stated that it practically would eliminate the use of cotton in bagging and in other fields where jute can be used. It also would mean that there would be an extension in the use of paper where cotton now is used.

It also has been pointed out that the farmer and the workingmen who use the heavier cotton materials would pay a disproportionate part of the tax. Those of larger means are consumers of the lighter weight cotton fabrics. For instance, it has been estimated that the plan would add 25c. to the cost of the average overall work-suit but would add only 7c. to the price of a full-dress shirt.

*RKO-Roxy Theater with curtain lowered*

## HOME FURNISHINGS TREND FORESHADOWED BY

# *Radio City Textiles*

*Wilcombe, McGeachin & Co.*

***RKO-Roxy main-act curtain***

TEXTILES are star performers at the two theaters lately opened in Rockefeller Center, New York. Rarely before in similar scenes have textiles been given such prominence. Thousands of yards of fine fabrics have been used as draperies, upholsteries and wall coverings, and large floor areas are fully carpeted. The standards set by these two theaters, Radio City Music Hall and RKO Roxy, will not only affect future auditorium construction, but may turn best practice in home decoration more definitely toward modern style in which textiles are an important vehicle for pattern and color.

Two exponents of contemporary design are responsible for the interior decoration work—Donald Deskey for Music Hall and Eugene Schoen for RKO Roxy. Sane modern design as conceived by these men, is to be distinguished from mere deviation from established practice which, under the name "Modernistic," has fallen into disrepute in some circles. Freedom of choice was nevertheless unhampered, as is indicated in the list of wall treatments ranging through cork, Bakelite, linoleum, glass, aluminum, steel, parchment, and fabrics, to the more traditional plaster materials. Though all such treatments are not yet applicable to the homes of the masses, the use of well-chosen textiles for interior decoration is within the reach of everyone. The Radio City theaters, with their associated foyers, lounges, etc., present a definitely "textile" impression. They offer a working exhibit of decorative and functional textiles which will doubtless suggest new fabrics and new fabric uses to hundreds of thousands of householders. The fact that leading quality-houses supplied the goods, is assurance that consumer taste is being led upward. The artistic guidance of those in charge of the interior scheme is everywhere evident, and most of the fabrics were made from designs supplied by

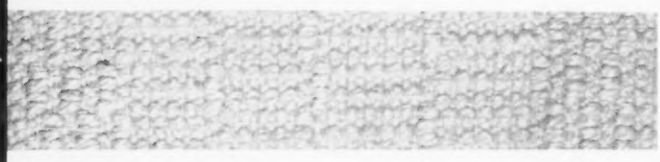
the decorators. The listing of fabrics and their suppliers which follows is not complete but touches the high spots to the extent which space permits.

The RKO-Roxy seats 3,700. The sides of the auditorium are done in wood veneer. The curtain is a heavy rayon pile fabric of champagne color, with its ⅛-in. pile pressed flat. It was supplied by Witcombe, McGeachin & Co. It gives a rich lustrous effect and is raised and lowered in graceful festoons. The under-balcony walls of the theater are covered with a linen done in orange, yellow and brown plaid imported from Czecho-Slovakia by Robert McBratney & Co.; 1,800 yd., woven to special specification, are used. The seats are upholstered in light terracotta Velmo by L. C. Chase & Co.

The grand foyer is draped with silk curtains which in conjunction with squatty stools at their feet accentuate the height of the room. In the first mezzanine lounge the seats are covered with plum colored velvet. Chairs in the women's lounge are done in an unusual fabric of black and white horse-hair with a golden orange warp of ply yarn. Design is by Robert Heller, executed by Edward Maag. Second-floor lounge furniture is covered with modern, chenille-type, hand-woven upholstery in gold and

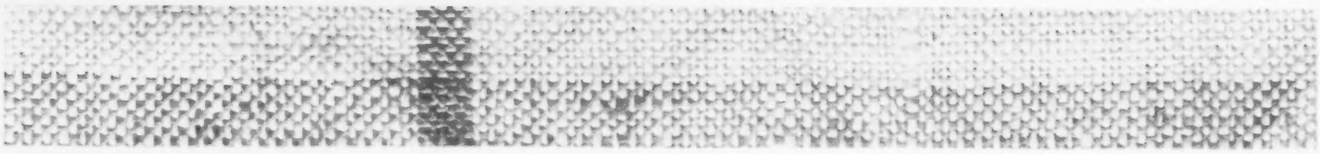
## RKO-ROXY

**Women's Lounge**



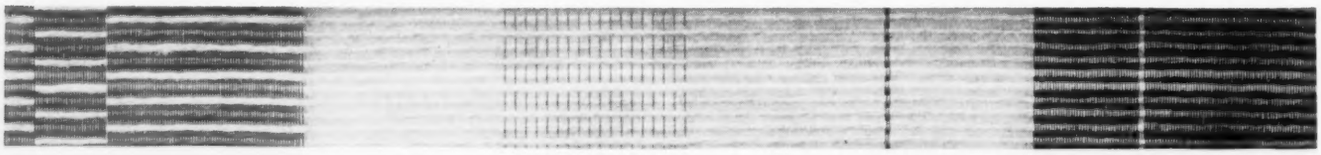
*Willich-Franke*

***Blue and gold drapery***



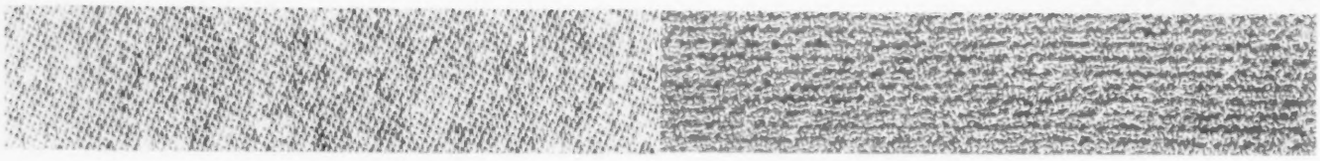
*Robert McBratney & Co.*

***Linen for under-balcony walls***



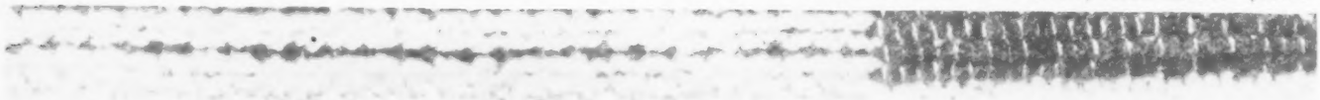
*Edward Maag*

***Hair-cloth chair covering***



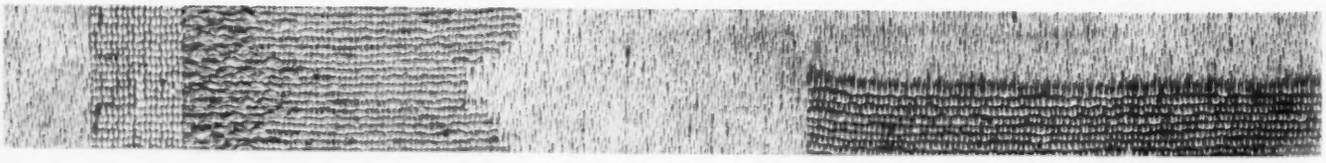
*L. J. Hamm & Co.; Sidney Blumenthal & Co.*

***Silver-sheen metallic cloth; Avon mohair frieze***



*Willich-Franke*

***Hand-woven chenille for lounge chairs***



*F. Schumacher & Co.*

***Woven-pattern wall covering***

blue, designed by Eugene Schoen, made by Willich-Franke. A silver-sheen metallic cloth used in the women's main "powder-room" is from L. J. Hyams & Co. Stools in this room are done in dark burnt-orange silk and a chaise-lounge is upholstered in a jade green satin from J. H. Thorp & Co.

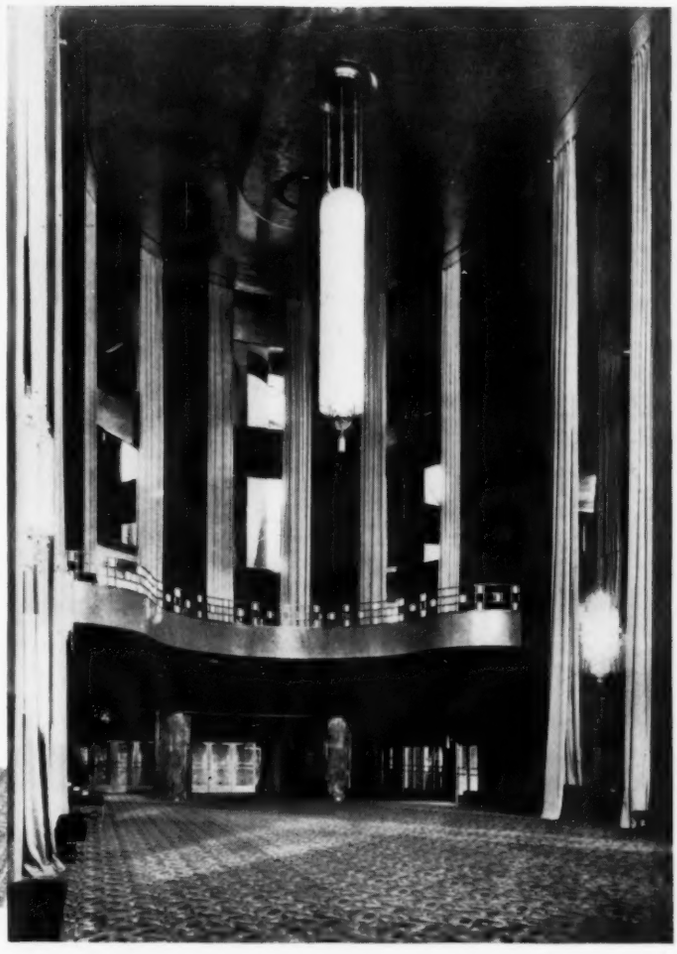
The theater is carpeted with Gulistan grade wilton made by A. & M. Karagheusian from designs by Eugene Schoen. The carpet is done in medium size repeats of conventional motifs.

Radio City Music Hall seats 6,200 and is called the largest theater in the world. The layout includes a grand foyer, 18 passageways and promenades, two lobbies, three smoking rooms, three lounges, four "powder-rooms," etc. The auditorium is built of nine overlapping, circular arches designed and finished with special plaster for perfection of acoustical effect. The back walls are covered with heavy cotton monk's-cloth made by the American Woolen Co. and specially screen-printed with a decorative design done by Ruth Reeves, showing intermingled groups of typical characters from three fields of amusement—music, theater and circus. Over 2,000 yards of this cloth, selected for its acoustical qualities, are used.

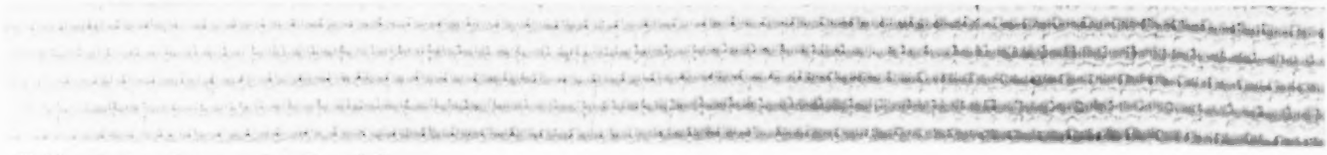
The main curtain of the Music Hall's immense

## MUSIC HALL

**Grand foyer**

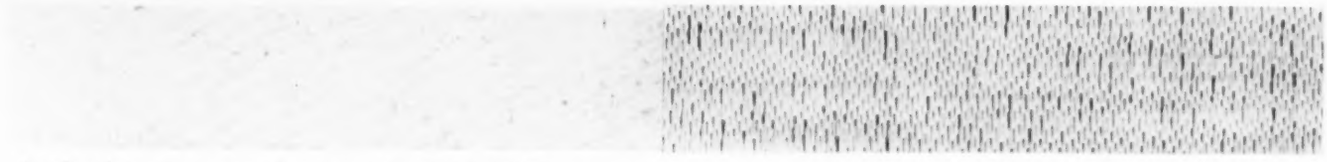


***Bourette serge*** — *Howard & Schaffer, Inc.*

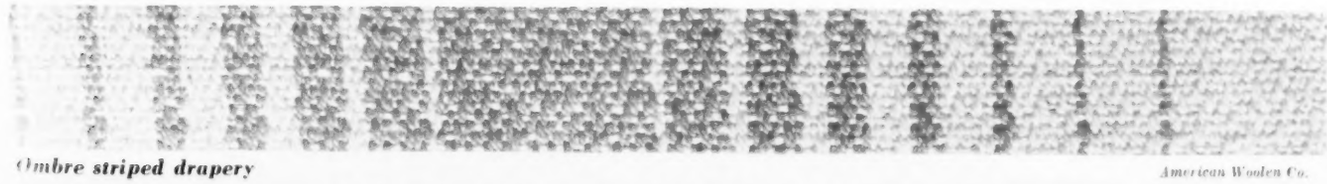


***Golden luster drapery for Grand Foyer*** — *F. Schumacher & Co.*

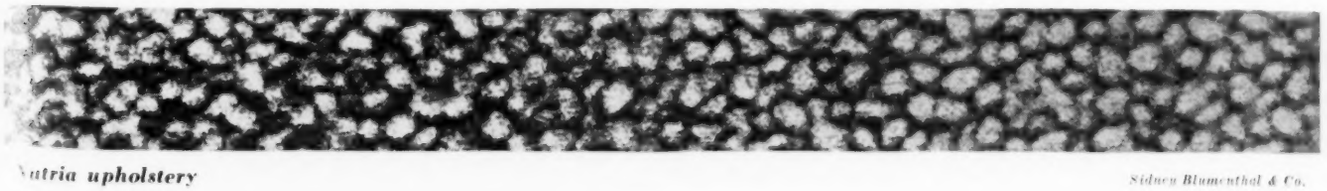
***Green moiré curtain material*** — *F. Schumacher & Co.*



***Another bourette serge; frost curtain, Music Hall*** — *Howard & Schaffer, Inc.; Witcombe, McGeachin & Co.*



***Ombre striped drapery*** — *American Woolen Co.*

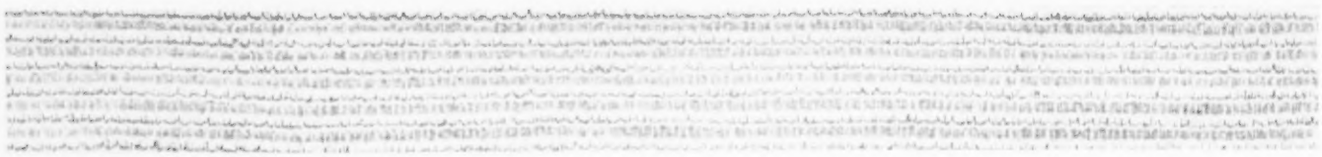


***Nutria upholstery*** — *Sidney Blumenthal & Co.*

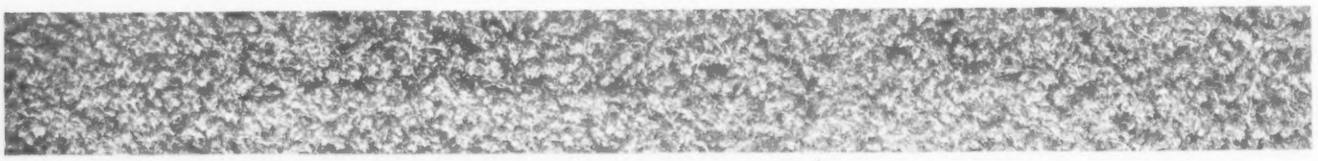
*Immense stage of Radio City Music Hall*

***Ripple satin, main-act curtain, Music Hall*** — *J. H. Thorp & Co.*

***Rose beige "Yutex" upholstery*** — *Sidney Blumenthal & Co.*



***Gros-grain reps in gold*** — *J. H. Thorp & Co.*



***"Kinkimo" upholstery*** — *Sidney Blumenthal & Co.*

stage is a ripple satin by J. H. Thorp & Co. The fabric has a golden brown sheen on its face and a back of coarse slub yarn which produces the "ripple." The curtain is 200 ft. wide and 78 ft. high. It is raised by a battery of separate motors, in festoons which may be individually controlled. Seat upholstery is Chase Velmo in henna shade. An inner curtain is by Witcombe, McGeachin & Co. The satin face is of oyster-white rayon. Its silvery, frosty effect reflects the color value of whatever light is thrown upon it. The fabric has the appearance of a magnified costume satin, being of coarse yarns and weighing 24 oz. to the running yard.

The grand foyer is 60 ft. high and measures 140 by 45 ft. Ceiling-high mirrors are flanked by golden-luster draperies supplied by F. Schumacher & Co. Between the mirrors the walls are covered with a special copper-brown, short-nap velvet supplied by J. H. Thorp & Co.

Murals feature many of the rooms. On the walls of the men's lounge are decorative maps of the world on brown linen by Witold Gordon. In the women's "powder-room" a distinctive rayon damask used on the walls was designed by Marguerita Mergentime and executed by Stead, Miller & Co. Pattern involves lilies and orchids in light yellow and blue-green. Green moire curtains are by F. Schumacher & Co. A bourrette serge of spun silk from Howard & Schaffer covers a chaise-longue.

S. Blumenthal & Co. supplied a wide variety of pile upholstery fabrics for the lounges including a mohair frieze, a mohair pile fabric, a deep alpaca pile, one of mercerized cotton and one of tussah silk. The American Woolen Co. in addition to supplying goods in the gray for mural work and back stage use, also supplied draperies.

The carpeting is Karagheusian's Gulistan done in designs by Donald Deskey and Ruth Reeves.

TDVERTISING PAGES REMOVED

# THE PERSONAL PAGE

WILLIAM W. CORNELL has been made president of Nashawena Mills, New Bedford, Mass., and WILLIAM WHITMAN, JR., a director of the corporation to fill vacancies occasioned by death of MALCOLM D. WHITMAN. Mr. Cornell is a vice-president of William Whitman Co. and has been in charge of Nashawena sales account for 12 years.

JOHN F. SWEENEY has been elected president and treasurer; JOSEPH F. SWEENEY, secretary, and JOHN F. EGAN, director, of the Fairmont Worsted Co., Woonsocket, R. I. The three comprise the board of directors of the company, which manufactures men's wear worsteds.

B. B. BLACKWELDER, vice-president of the Granite Cordage Co. and the Granite Falls (N. C.) Mfg. Co., was elected president of these companies and the A. A. Shuford Mill Co., Inc., at Hickory, succeeding the late A. Alex Shuford. C. H. GEITNER was re-elected president of the Highland Cordage Co., at Hickory.

CLYDE L. CARNAHAN was elected president of the Empire Worsted Mills, Inc., Jamestown, N. Y., at the annual meeting of stockholders and directors Jan. 14. Other officers chosen at the meeting are HJALMER SWANSON, vice-president and general manager, and WRIGHT D. BROADHEAD, secretary and treasurer.

GRANT A. MACCLATCHIE, who has served with the U. S. Finishing Co. for 20 years, recently as secretary, has been made treasurer of the company. He succeeds ANDREW IMBRIE, who retired some time ago. He was also elected a director.

E. H. ROONEY, president and selling agent, Narragansett Mills, Fall River, Mass., has resigned and is succeeded by ARTHUR PAUCHLEY.

A. G. STALEY, a director of the Holeproof Hosiery Co., Melbourne, Australia, and of Staley & Staley, Ltd., has been on a visit to this country for the purpose of buying equipment and studying knitting conditions. His time has been divided between the Milwaukee plant and the New York office of the parent company with a side trip to the Canadian plant.

V. P. HATTEMER, Vulcan Silk Co., has been reelected chairman of the executive committee of the Commission Throwsters Division of the Silk Association. E. W. WALTERS, Phoenix Silk Mfg. Co., has been named vice-chairman.

WALTER C. TAYLOR has resigned as secretary and treasurer of the Southern Textile Association and of the Arkwrights, Inc. These offices will be filled temporarily by D. H. HILL, JR., associate editor of *Southern Textile Bulletin*. Mr. Taylor will devote his full time to his accounts, including Wickwire Spencer Steel Co., Crocker-Wheeler Electric Mfg. Co., Philadelphia Gear Works and Norwich Wire Works.

THEODORE P. MORRIS, formerly with Textiles, Inc., Gastonia, N. C., and with the Armstrong Mills and the Ridge Mills, has accepted the position of general manager of the Bladenboro (N. C.) Cotton Mills.

NEWTON G. HARDIE has resigned his position as superintnedent of Oconee Mills Co., Westminster, S. C., which he has held for over six years, to become superintendent of Inman (S. C.) Mills, succeeding the late L. P. Duncan. Mr. Hardie graduated from Lowell (Mass.) Textile Institute in 1924.

WILFRED NUTT has resigned as superintendent of Sidney Hosiery Mills, Inc., Graham, N. C.

IRVING K. HESSBERG, has been elected president of the Van Raalte Co., New York, succeeding MALCOLM G. VAN ARSDALE, resigned. FRANK R. REISENBERGER was elected vice-president and LOUIS WELT, secretary. L. W. GRIFFIS, a director, was placed in charge of the company's plants.

E. J. ASHE has been made first vice-president of Standard Knitting Mills, Knoxville, Tenn., and H. W. WALKER, the firm's New York representative, has also been named a vice-president.

D. B. MCBEE, fabric sales manager of Celanese Corp. of America, New York, has resigned.

G. C. ESKRIDGE has become superintendent of the Double Shoals (N. C.) Mfg. Co.

WILLIAM FOX is now superintendent of the Tuscaloosa (Ala.) Hosiery Mills.

EDWARD BARLOW, former manager of the Chicago office of the Celanese Corp. of America, has joined the Duplan Silk Corp., to act as general assistant in the distribution of fabrics to the New York cutting-up trade.

WILLIAM H. DREXEL has been transferred from Propper-MacCallum Hosiery Co.'s Philadelphia plant to act as manager of the company's plant in Elmhurst, L. I.

ROBERT S. A. REOCH, general superintendent of print works of Pacific Mills, Lawrence, Mass., has retired from active life after a 46-year connection with the industry. He joined Pacific in 1909 when that company absorbed Cocheco Mfg. Co.

MARTIN P. GLYNN, JR., formerly with Cannon Mills and later with Rowan Mills, Salisbury, N. C., has joined the sales organization of Textiles, Inc., and Hampton Textiles, Inc., making headquarters in the New York office and covering part of the Pennsylvania-New York territory.

RONALD E. STEVENS, for several years with the Cotton-Textile Institute as a cost accountant, has been appointed assistant manager of the Rocky Mount (N. C.) Mills.

C. C. OVERTON resigned his position with the Pepperell Mfg. Co., Feb. 1, to become associated with the Bibb Mfg. Co., Macon, Ga., to undertake the development of suiting fabrics and other materials.

GEORGE H. MONTGOMERY succeeds C. C. OVERTON as manager of the Pepperell Mfg. Co.'s men's clothing fabric department, New York.

J. B. DUVAL, formerly with Brookford (N. C.) Mills Co., has been placed in charge of the cotton and cost departments of Alabama Mills Co., Birmingham, Ala.

H. C. GREENLAW has resigned as agent of the Bates Mfg. Co., Lewiston, Me. WILLIAM C. SUMMERSBY, agent of the Hill Mill, also of Lewiston, succeeds him. JOHN H. GREENE, superintendent of the Edwards Mfg. Co., Augusta, has been appointed agent of the Hill Mill.

JOSEPH GEISLER is now general manager of the Standard Piece Dye Works, Paterson, N. J.

HARRY L. BAILEY of Wellington, Sears & Co., Boston, Mass., and B. B. GOSSETT, president of Chadwick-Hoskins Co., Charlotte, N. C., have been elected to the Cotton Advisory Committee of cotton cooperatives.

FRANK J. DOYLE, sales manager of the Sulloway Mills, Franklin, N. H., has resigned.

HARRY A. ALMOND and W. J. VOGEL, who have been connected with the department of Minot, Hooper & Co., handling Dwight-Anchor sheets and pillow cases, have become associated with Nashua Mfg. Co.

THOMAS DONLON, formerly with Arkwright Division of United Merchants & Manufacturers, Inc., Fall River, Mass., has been appointed manager of the Mansfield (Mass.) Bleachery.

WILLIAM QUILLEN, Swathmore, Pa., has been named general manager of the Southbridge (Mass.) Finishing Co. and the Sturbridge Printing & Finishing Co., succeeding Herbert W. Wilson who resigned last fall. The new manager was formerly head of the Bancroft Mills located in Pennsylvania.

DAVID M. MOXON, Fall River, Mass., has been appointed agent of the American Thread Co.'s mills at Willimantic, Conn., to succeed DON H. CURTIS, agent for the last 13 years. From 1921 to 1928 Mr. Moxon was superintendent at Willimantic and since then he has been assistant agent of the Kerr Mills, Fall River.

VINCENT C. ELWELL, who was associated with the Sulloway Mills, Franklin, N. H., has been named general manager of the Vermont Hosiery & Machine Co., Northfield, Vt.

GEORGE S. JOHNSTON, formerly with the cotton firm of Means & Johnston, of Gastonia, N. C., has accepted the position of manager of the Chattanooga (Tenn.) office of Textiles, Inc., and will handle the sale of yarns for that company and Hampton Textiles, Inc., in the Tennessee-Alabama-Georgia territory.

FREDERICK W. GREENHALGH, for more than 50 years connected with the weaving department at the Peace Dale (R. I.) Mills has retired after working in the textile industry for 57 years. Mr. Greenhalgh for most of his years was overseer of the weaving division of the Peace Dale Company. He will be 76 years old in March.

ARTHUR EICHLER is now associated with Scheuer & Co., cloth brokers, New York. Mr. Eichler recently has been operating as an independent technician and consulting silk and rayon specialist for the converting trade. He will continue to offer technical service through Scheuer & Co.

E. L. SCRUGGS has been made engineer for the Lancaster Cotton Mills and will make his headquarters in Chester, S. C. He will look after the plants in Chester, Fort Mill, S. C., Lancaster, S. C., and Kershaw, S. C.

W. J. STILL has resigned as superintendent of the Chester (S. C.) unit of the Aragon-Baldwin Cotton Mills, Inc., and has been succeeded by A. S. JARRETT, who is superintendent of the Rock Hill (S. C.) plant of the same company. Mr. Jarrett will supervise both plants.

ERNEST F. UPTON is now superintendent of the Lockwood Mfg. Co., Waterville,

Me., succeeding George O. Dexter. Mr. Upton has been with the local textile plant 11 years.

W. R. BROOKS has been made day superintendent of the Haleyville (Ala.) plant of the Alabama Mills Co. Mr. Brooks has been overseer of the night weaving division of the Jasper (Ala.) plant of this company.

M. T. GRIMES has been promoted from superintendent to agent of the Chicopee Mfg. Co. of Ga., Gainesville, Ga. He is succeeded as superintendent by HARRY H. PURVIS who has been with the company for several years.

W. J. WHITEHEAD has been appointed managing director of the Wabasso Cotton Co., Ltd., Three Rivers, Que., succeeding to a combination of two positions, that of manager recently vacated by W. G. E. AIRD, and the general managership handed down by Mr. Whitehead's father.

ROBERT NICHOLAS has resigned from the U. S. Finishing Co. to join the selling organization of Ware Shoals (S. C.) Bleachery.

ROBERT F. GREGORY, formerly with the Union Mills for 15 years, and LOUIS G. HAIGHT, who was with Barnes-McGoey & Ely Corp., and the Barnes-McGoey Corp. for the last 21 years, have joined C. C. Valentine & Co., knit goods selling agents, New York.

G. C. ESKRIDGE is now superintendent of the Double Shoals (N. C.) Mfg. Co.

W. E. HASEMAN is now superintendent of the Ideal Mercerizing Co., Burlington, N. C.

K. A. THOMPSON, JR., is now superintendent of the Cochran (Ga.) Cotton Mill Co.

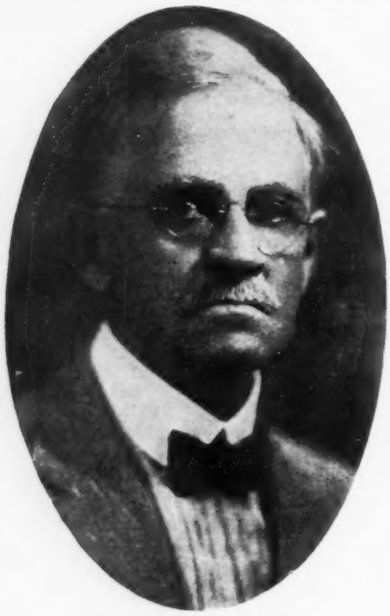
H. O. HORNBERGER has recently become superintendent of the Bassett (Va.) Knitting Mills.

M. I. TURNER is now superintendent of the Aycock Hosiery Mills, Pittsburg, Tenn. R. O. ARNOLD has assumed his new duties as superintendent of the Covington (Ga.) Mills.

J. F. MORRIS is now superintendent of the Puritan Weaving Co., Fayetteville, N. C., succeeding the late J. B. COUNCIL.

# *Obituary*

DR. WILLIAM FRANKLIN EDWARDS, director of laboratories, U. S. Testing Co., and one of the leading apostles of research in the textile industry, died of pneumonia Jan. 12 in Englewood, N. J., aged 76. Born in Rock Island, Ill., Dr. Edwards graduated from University of Michigan and entered the field of university education. In 1897 he was named president of University of the State of Washington. Later activities included research directorship for



*Dr. William F. Edwards*

the Guggenheim Foundation, and for a group of motor manufacturers. He joined the testing company in 1919. Active in many scientific societies, he was for four years chairman of Committee D-13 of the American Society for Testing Materials; he was also at one time a director of the U. S. Institute for Textile Research. An ardent believer in the need for organized fundamental research in the industry, he contributed immeasurably to the thinking on this subject. Among his writings was a series of articles in TEXTILE WORLD outlining a definite plan for such a project. His death removes a man whose virility and honesty of thought will be sadly missed.

CHESTER I. CAMPBELL, aged 64, one of the country's foremost directors of expositions, died suddenly in Belmont, Mass., Jan. 20, while making an address to 300 parents and their sons. He was widely known to the industry by his managership of the Knitted Arts Exhibition held annually in Philadelphia and of the International Textile Exposition at one time held every two years in Boston. He had been handling industrial expositions since 1898, handling all the automobile shows in Boston since the first in 1905. He was secretary of the Boston Automobile Dealers Association. During the war he handled all war exhibitions throughout the country.

WILLIAM H. DUVAL, aged 61, head of Wm. H. Duval & Co., and prominent in wool goods selling for 40 years, died Jan. 20, at Barranquila, Colombia, S. A., while on a cruise for his health. His firm was liquidating. Mr. Duval was the first to establish an independent business under a factoring organization.

WILLIAM L. BARRELL, aged 70, president of William Barrell Co., Boston, and treasurer of Lawrence (Mass.) Duck Co., and of Lincoln Mills, Huntsville, Ala., died at Winchester, Mass., Jan. 13. Mr. Barrell succeeded his father many years ago as agent of the Lawrence Duck Co. He was chairman of the board of the Cotton Duck Association and associated with banking and philanthropic institutions. He was founder of the Lincoln Mills.

JOHN G. BENTLEY, aged 34, president, Southern Silk Mills, Inc., Greensboro and Kernersville, N. C., died Jan. 24.

ALBERT LINDENBERG, aged 48, vice-president of Oscar Heineman Corp., Chicago, died by his own hand Jan. 18. He was a member of the board of governors of the National Raw Silk Exchange and one of the original sponsors of the exchange.

HARRY A. SHIELDS, aged 51, president and general manager of the Grand Rapids (Mich.) Textile Machinery Co., died recently of pneumonia. He was prolific as an inventor and is credited with more than 50 devices in knitting machines.

SAMUEL DALE STEVENS, aged 42, assistant general manager of M. T. Stevens & Sons, North Andover, Mass., died recently at his home in that town. From 1919 until 1924 he was superintendent of the Peace Dale (R. I.) Mills.

*Robert G. Blumenthal*

ROBERT G. BLUMENTHAL, aged 37, vice-president and a director of Commercial Investment Trust Corp., in charge of relations with its textile factoring subsidiaries, died at the 105th Field Artillery Armory, New York, Jan. 14 after completing a hard ridden game of indoor polo for the Northport Polo Club. Mr. Blumenthal had risen to a position of wide influence and responsibility while relatively a young man. He was graduated from Yale in 1917. His first business connection was with B. Blumenthal & Co., button importers, in which house he soon became a partner. In 1926 he joined Peierls, Buhler & Co. as vice-president. When that company was merged with Frederick Vietor & Achelis, Inc., under the corporate title of Commercial Factors Corp., Mr. Blumenthal was elected president, a position he held until one year ago when he resigned to devote his entire time to his duties as vice-president and director in charge of factoring subsidiaries for Commercial Investment Trust Corp. This was at the time when Meinhard, Greeff & Co., Inc. and Wm. Iselin & Co., Inc., became part of the C.I.T. group of factoring corporations. Mr. Blumenthal was also a member of the board of manager of the Silk Association.

# INDUSTRY-WIDE EVENTS

## *New Products Point Way to Re-employment*

Inventors and manufacturers are busy with new ideas, new products are being gotten ready for the market, the Patent Office is speeded up, and radically new processes, machines and materials are now being offered to a waiting public, pointing the way back to re-employment and the end of depression, declared Dr. H. C. Parmelee, vice-president of the McGraw-Hill Publishing Co., who recently addressed the Science Forum of the New York Electrical Society on "New Things—Developments During the Depression." As examples, a large number of new products, new machines, new materials and new devices were exhibited during the address, and others were illustrated and described by the speaker. Textile items among the many new products shown included non-run hosiery, crease-proof fabrics, rubber textiles, and cotton houses.

Pointing in the same direction, an exhibition of new materials, new products and new uses, assembled by the National Alliance of Art and Industry, opened in the Art Center Galleries, New York, Jan. 16 to continue for one month. The exhibitors included International Nickle Co., General Motors, General Plastics, New Jersey Zinc Co., Burgess Battery Co., American Brass Co., Towle Mfg. Co., Aluminum Colors, Inc., Bakelite Corp., Taylor Instrument Cos., Lowe Paper Co., Toledo Synthetic Products, Inc., and many others. It is planned to make this exhibition an annual event.

•

## *Committee D-13 To Meet In New York*

The spring meeting of Committee D-13 of the American Society for Testing Materials, will be held at the Hotel New Yorker, New York, Thursday and Friday, Mar. 9-10, in conjunction with the regional meeting of the parent society which will take place all that week.

•

## *To Manufacture in Canada*

In order to take advantage of the preferences to facilitate entry to the markets of the British Empire, many United States firms, since publication of the results achieved at the Imperial Conference last summer, have decided to manufacture their products in Canada, according to word from a correspondent in that country. These manufacturers hold, it is said, that the Dominion, owing to its geographical position, is the logical center for manufacture and distribution for the British Empire.

One of the latest companies to decide to produce in Canada is B. V. D. Inc. which will have underwear and bathing suits made in Montreal. The D. H. Stewart Co. will manufacture the underwear for the American concern and the Knit-To-Fit Mfg. Co. the beachwear.

## *The "Annual"*

**The 1933 Annual Review and Forecast Number of TEXTILE WORLD, published as the thirteenth issue of the year, will be mailed to subscribers on or about Feb. 28. It will concern itself with the unaesthetic question of money. Money-Making Management, Money-Making Methods, Money-Making Merchandising, and Money-Making Modernization, will be the titles of its four sections. Of course, if you are not interested in money . . .**

•

## *1932 Retail Sales*

Reports received from members of the National Retail Dry Goods Association in the various States on the ratio of 1932 sales volume to that of 1931 indicate a sales decline of 22.6% for the country as a whole. Taking into consideration the decline in 1931 of 11.5% from 1930 and the increase of 8.6% in 1930 from 1929, the sales volume in 1932 was 37% below that of the peak year 1929.

From the textile standpoint, it is encouraging to note that the decline in dry goods sales was checked during the year. According to a survey made by R. G. Dun & Co., there was a sharp upswing in such sales in September, and during the succeeding months the margin of decline from last year continued to be narrow. The year closed with sales of department, dry goods, and variety stores estimated at $31,500,000,000, as compared with $36,800,000,000 in 1931, according to this source.

•

## *Stylist Must Be Counsellor*

The changing role of the stylist in the textile industry was the theme of an address delivered Jan. 25 by Hugh A. Murrill, president, Murrill & Co., merchandising specialists, at the monthly luncheon meeting of the Fashion Group, held at the Hotel Ambassador, New York. Speaking before several hundred leading stylists of the manufacturing and distributing divisions, Mr. Murrill stressed the point that a new fashion in fabric or apparel, or in any other division, is not a success until it has been adequately promoted to make profitable volume for the company sponsoring it.

"The successful stylist of today," he said, "is more than a stylist—she is a merchandising counsellor, and she is so thoroughly conversant with market, price and demand, that she can follow through on a creative idea from the original conception to the final acceptance as registered by sales."

•

## *Joint Alumni Meeting*

A joint alumni meeting of the New Bedford Textile School and Bradford-Durfee Textile School groups of Greater New York will be held at the Hotel Bristol, 129 W. 48th St., Feb. 24 at 6 p.m. If not already on the mailing lists, New Bedford members are urged to get in touch with the secretary, Arthur H. Ronne, Meritas Mills, 320 Broadway; Fall River alumni members with James L. Giblin, U. S. Testing Co., 1415 Park Ave., Hoboken, N. J.

William Smith, principal of New Bedford Textile School, will attend and address the group. Henry W. Nichols, principal of Bradford-Durfee, is also expected although his definite acceptance had not been received at time of writing. About 50 members of the two groups are expected.

•

## *Columbia's Spring Textile Courses*

Columbia University, New York, in its extension department offers evening courses on textiles during the spring session beginning Feb. 8, according to James C. Egbert, director. One of these courses, beginning Feb. 13 and running weekly thereafter for 15 weeks, is a complete survey of the silk and rayon field from raw material to finished fabric, the lecturer being James Chittick who has conducted these courses for many years. Mr. Chittick also conducts a general textile course covering all textiles, at his New York office on Tuesday evenings beginning Feb. 14 and extending for 16 weeks.

Columbia University, New York, has started an evening course in the planning, sketching and developing of ideas and motifs into practical designs for fabrics, the course to run from Feb. 8 to May 24 and to be held Wednesdays, 7.30 to 9.20 p.m., in Room 418 Engineering Building. The instructor is William H. Arlt.

## *Textile Calendar*

National Knitted Outerwear Association, exposition, Grand Central Palace Feb. 13 to 17, 1933.

Committee D-13, American Society for Testing Materials, spring meeting, Hotel New Yorker, New York, March 9 and 10, 1933.

Silk Assn. of America, annual meeting, New York, Mar. 22, 1933.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, Apr. 24 to 28, 1933.

National Cotton Week, May 15 to 20, 1933.

American Society for Testing Materials, annual meeting, Stevens Hotel, Chicago, June 26 to 30, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9, 1933.

TEXTILE WORLD'S

# Cotton Digest

THE need for plant modernization, arising out of technological advance, probably is felt more intensively in cotton manufacture than in any other branch of the textile industry. Single-process picking, long-draft spinning, high-speed spooling and warping, higher loom speeds, and other developments have imposed their demands upon mills which wish to stay in business.

Much of this modernization undoubtedly means displacement of workers to some extent, but the manufacturer, facing competition from well-equipped mills, has no alternative.

Until there is some legal restriction against price-cutters, a mill has no weapon except the cutting of costs to meet lower prices. Otherwise, what slim profits do exist will fade away.

It is still true that workers in individual plants must be educated to understand, and moreover to accept, this trend toward machine and methods modernization as the lesser of two evils: unemployment for a small portion of their number, or complete unemployment that comes with bankruptcy.

*The official "Cotton Week" poster stresses the slogan—Everybody uses cotton*

## *One Billion Yards!*

Considerable interest was aroused in January by the report that Soviet Russia, through its official trading agency in this country, the Amtorg Corp., was negotiating for the purchase of about one billion yd. of cotton goods to be delivered over a period of 18 months. According to information in the trade, Russian interests were prepared to pay 60% cash upon shipment of the goods, but the balance would be paid in installments. It was understood that certain southern print cloth manufacturers, including J. C. Self, of Greenwood, S. C., and A. F. McKissick, of Greenville, S. C., had conferred with representatives of Amtorg, and later approached the Reconstruction Finance Corp. concerning a loan to finance raw material purchases and plant operations in the event that the Russian deal is consummated.

More than 400,000 bales of raw cotton would be required to manufacture one billion yd. of staple cotton fabrics such as print cloths, broadcloths, sheetings, voiles, and lawns; all of which the Amtorg is said to have under consideration. It is estimated that about 2,250,000 spindles and 60,000 looms would be able to run 18 months, on single shift basis, on an order for one billion yd.

•

## *Bedspread Situation*

Bedspread sales during 1932 were 15% in excess of production, according to information released at a meeting of the Bedspread Group of the Cotton-Textile Institute, Jan. 19, and it was stated that net stocks, above unfilled orders, on Dec. 31 represented only slightly more than two weeks' production. R. W. Bennet, chairman of the group, reported that buyers favored the plan of having formal opening of bedspread lines. The week ending July 15 was selected as the time for the formal opening for fall lines.

•

## *Unfilled Cotton Goods Orders Greater Than 1931*

Cotton goods sales for December totaled 321,314,000 yd., or 109.9% of production for the month, according to the Association of Cotton Textile Merchants of New York. Shipments aggregated 277,943,000 yd., or 95.1% of production, while stocks on hand increased 7.2% to 214,560,000 on Dec. 31. Unfilled orders at the end of the year totaled 379,915,000 yd., an increase of 12.9% over the figures reported for Dec. 1, and 18% above the volume of unfilled orders on hand at the end of 1931.

Spindle activity during December, reported by the Bureau of the Census, was at the rate of 87.2% of capacity on a single shift basis, as compared with 96.9% in November and 97% in October. Only 23,775,136 cotton spindles were active during December, as compared with 24,349,506 operated in November. Cotton consumption for December amounted to 440,062 bales, showing an increase over the corresponding month of 1931, when only 415,401 bales were consumed by American mills. There was a decline in consumption, however, as compared with November, 1932, when 503,722 bales were consumed.

•

## *Coffin and Payne Head New Hunter Firm*

Howard E. Coffin and Frederick Huff Payne are to be chairman of the board and president, respectively, of Southeastern Cottons, Inc., the new company which will succeed to the business of the Hunter Mfg. & Commission Co. The name previously planned for this company—General Textiles, Inc.—was discarded when it was found that it had been previously used.

Mr. Coffin's background as a prominent industrialist in the automotive and aeronautical fields has been described previously in these columns. Mr. Payne, who has been Assistant Secretary of War in President Hoover's cabinet, is probably best known industrially through his activities as executive head of the Greenfield (Mass.) Tap & Die Corp.

Members of the executive committee of the new company include James A. Chapman, Spartanburg, S. C.; Donald Comer, Birmingham, Ala.; J. C. Evins, Spartanburg, S. C.; A. F. McKissick, Greenville, S. C.; Alfred Moore, Wellford, S. C.; George W. Mountcastle, Lexington, N. C.; John W. Porter, Rockingham, N. C.; Richard E. Reeves, Summit, N. J.; James C. Self, Greenwood, S. C.; Elliott Springs, Fort Mill, S. C.; George M. Wright, Great Falls, S. C. The new company started operations Feb. 1 at 58-60 Worth St., New York, the same location occupied by the Hunter firm.

## *Magruder Dent Heads Textile Merchants*

Magruder Dent, of Joshua L. Baily & Co., New York, was elected president of the Association of Cotton Textile Merchants of New York by the board of directors on Jan. 24. Frederic A. Williams was elected vice-president; Henry C. Taylor, treasurer; W. Ray Bell, secretary. At the annual meeting on Jan. 17 the following were elected directors to serve till 1936 to succeed Messrs. Brewster, Curtis, Gallon and Milliken whose terms expired: Harry L. Bailey, Wellington, Sears & Co.; John C. Hughes, Jr., McCampbell & Co.; Robert T. Stevens, J. P. Stevens & Co.; Frederic A. Williams, Cannon Mills. The executive committee consists of Harry L. Bailey, Charles D. W. Halsey and George P. Ray together with the president.

•

## *Cone Representing Additional Mills*

The Cone Export & Commission Co. has been appointed exclusive selling agent for the Dacotah Cotton Mills, Inc., Lexington, N. C., manufacturers of fine-yarn chambrays and play-suit cloth. As reported in these columns last month, the Cone organization has also been made sole selling agent for the Florence Mills, Forest City, N. C., and the Appleton Co., Anderson, S. C., important flannel manufacturers, and the American Spinning Co., Greenville, S. C., print cloths. Cone is now handling over 50% of flannel production.

•

## *Cotton Price Comparisons*

The following are prices of key items in the cotton industry:

| | Feb. 1 | Jan. 3 | Feb. 1 1932 | Feb. 1 1931 |
|---|---|---|---|---|
| Spot Cotton, N. Y. | 5.90 | 6.10 | 6.80 | 10.45 |
| Ditto, high previous month | 6.40 | 6.20 | 6.85 | 10.60 |
| Ditto, ow previous month | 6.00 | 5.70 | 6.25 | 10.05 |
| Peeler Comber | 6c | 6c | 6c | 8½c |
| White Spooler Waste | 4c | 4c | 4½c | 7c |
| 10s frame spun yarn | 12c | 12½c | 13c | 18½c |
| 10s/2 carded skeins | 12c | 12½c | 13½c | 19c |
| 20s/2 carded peeler warps | 14½c | 15c | 16c | 21c |
| 60s/2 combed peeler warps | 37c | 38c | 39c | 54½c |
| 60s/2 mercerized cones | 55c | 55c | 51c | 70c |
| 37-in., 3-yd. drill | 4½c | 4½c | 4½c | 6½c |
| 38½-in. 64x60s | 3½c | 3½c | 4c | 5½c |
| 36-in. 4-yd. 56x60s | 3½c | 3½c] | 4½c | 5½c |
| Denim, 2. 20s | 9c | 9c] | 9½c | 11½c |

### Technocracy Weevil at Work

*A* TEXTILE WORLD *news correspondent paid postage on the following news item:*

*"A stalk of cotton is growing and blossoming unattended in a vacant lot at Valdosta, Ga."*

*When the vacant lot, unattended, produces a yard of cloth, we authorize the correspondent to wire us, collect.*

## COTTON IN THIS ISSUE


| | page |
|---|---|
| Allotment Plan Riddled with Bullets of Logic | 40 |
| Modern Looms Reproduce Colonial Coverlets | 44 |
| Method and Tools for Removing Twister Cylinders | 50 |
| Decaying Roofs—Elimination of Dry Rot | 58 |
| Defect in Denim | 74 |
| Finishing Binding Cloth | 74 |
| Licker-in Speed | 75 |
| Improved Comb Box | 77 |
| Roll Covering Apparatus | 77 |


## *Cotton Mill News*

ALABAMA MILLS CO., Birmingham, Ala., operating plants in 10 Alabama towns, with combined spindleage of 100,000, recently filed voluntary petition in bankruptcy. Paul A. Redmond, president of the company, was appointed receiver.

LOWE MILLS, INC., Huntsville, Ala., has been organized to acquire the physical properties, as well as personal property valued at $124,252, of the bankrupt Lowe Mfg. Co. Officers of the new company are: Donald Comer, Birmingham, Ala., president; John W. Porter, Rockingham, N. C., vice-president; Daniel Burke, New York City, secretary and treasurer. It is understood that no plans for starting operations are being considered.

FALLS CO., Norwich, Conn., which recently resumed operations, is building a 30x50 ft. brick addition in the rear of the mill which will house two Diesel engines, replacing steam engines now in use.

MALLISON BRAIDED CORD MILLS, Athens, Ga., are installing one Whitin speeder.

ATHENS (Ga.) MFG. CO. has purchased the plant and other properties of the SOUTHERN MFG. CO., of Athens, which was placed in receivership several months ago.

JOHN P. KING MFG. CO., Augusta, Ga., will install 300 looms as the initial step in an expansion program.

BORDEN MILLS, INC., Fall River, Mass., has asked holders of first mortgage bonds due Aug. 1, 1934 to agree to extension of maturity to Aug. 3, 1942.

NEW BEDFORD (Mass.) CORDAGE CO. may exchange its present plant for that of the Bristol Mill now owned by the city, for non-payment of taxes.

POTOMSKA MILLS CORP., New Bedford, Mass., shareholders have received an offer of $29 per share from Jerome A. Newman and time for deposit of shares was extended to Feb. 6.

PEQUOT MILLS, Salem, Mass., report net loss of $127,983 for the fiscal year ended Nov. 30, 1932, as compared with a deficit of $49,324 for the previous year. Sales for the year were only 7% less in yardage, but 29% less in dollar volume. Current assets as of Nov. 30, 1932, exclusive of investments, were $3,027,973; while current liabilities were $297,523.

NASHUA (N. H.) MFG. CO. announced at the annual stockholders meeting, Jan. 23, that wide sheeting manufacturing operations would be transferred from the former Dwight Mfg. Co.'s plant at Somersworth, N. H. to Nashua immediately.

BURLINGTON (N. C.) MILLS CO. has purchased a Hermas shearing machine.

PROXIMITY MFG. CO., Greensboro, N. C., has announced the purchase of equipment to increase by 50% the power generating facilities in its plants. Two steam turbines, of 3,000 kw. and 1,000 kw. capacity, respectively, have been purchased from the General Electric Co., and a 1,000-hp. boiler has been ordered from Babcock & Wilcox. J. E. Sirrine & Co., Greenville, S. C., are the engineers in charge.

MADISON MILLS, INC., Marshall, N. C., will begin operations in the old Capitola mill plant at Marshall, on Feb. 14 with Henry E. Erwin, of Brevard, N. C., as superintendent and 100 operatives.

OAKBORO (N. C.) COTTON MILLS has completed the installation of one 6-cylinder, 360-hp. Diesel engine.

CHARLES MILLS, Red Springs, N. C., has completed the installation of a high-speed warper and creel and an additional comber.

BEACON MFG. CO., blanket manufacturer, will move equipment of its New Bedford (Mass.) plant to the Swannanoa (N. C.) plant during 1933.

GLENWOOD COTTON MILLS, Easley, S. C., have purchased six No. 40 70-spindle winders from the Universal Winding Co. and three high-speed warpers from the Saco-Lowell Shops, to replace old equipment.

BRANDON CORP., Greenville, S. C., recently installed three Universal No. 40 winders of 70 spindles each and one Saco-Lowell high-speed warper in its Poinsett plant, replacing old equipment.

PICKENS (S. C.) MILLS have installed three Universal No. 40 winders of 80 spindles each and two Saco-Lowell Model D high-speed warpers to replaced old type spooling and warping.

YARNS CORP. OF AMERICA, Spartanburg, S. C., which was placed in a liquidating receivership several months ago, has sold real estate and buildings to W. C. Bobo, of Greenville, S. C., formerly vice-president and general manager of Judson Mills. Mr. Bobo has not announced his plans.

WASHINGTON MILLS CO., Fries, Va., is installing 35,000 new Whitin long-draft spindles to replace 40,000 spindles of old warp spinning which will be scrapped.

RIVERSIDE & DAN RIVER COTTON MILLS, Danville, Va., report profit for year ended Dec. 31, 1932, at $29,314 before deduction of $60,000 for reserves. Total net income for the year is reported at $9,664,261. Effective Feb. 6 the company announced reduction in salaries and wages of 10 to 15%. Company is on a five-day week.

TEXTILE WORLD'S

# *Wool Digest*

BASED on raw material consumption, the wool industry suffered a greater contraction in volume in 1932 than did any other branch of the textile industry. Manufacturers who remember (and who doesn't?) the prostration last spring, will not be surprised at this statistical assertion.

But 1933 is something else again. The theory of a two-year cycle in textiles has often been applied particularly to wool goods. On this basis, the current year should be marked by increased activity. More than this, however, manufacturers and others who do not worry about cycles seem inclined to anticipate a relatively good wool year.

If their hopes materialize—and we believe they will—price stability will be warranted and will help merchandisers. There is a basis for such stability in both the raw material situation and the outlook for consumption. The other ingredient needed is a recognition of this fact on the part of individual members of the industry.

## *A Few Sellers Start Carrying Stock*

A few wool goods houses have, since the turn of the year, announced that they will carry stock on a wide variety of fabrics including fancies, ready to supply immediate deliveries to customers. The plan is criticised by the rest of the market as further discouragement to the already difficult job of getting adequate advance business from buyers. Although it may draw a few orders not otherwise obtainable it is regarded by its opponents as too expensive a practice to be feasible. Some one has to pay for the risk of carrying goods. The mill does not seem to be able to get a profitable price under previous practice; how then undertake this additional expense? Perhaps the proponents of stock carrying will explain.

•

## *Blanket Men Plan Associational Activities*

Following the meeting of the Wool Blanket Manufacturers Association at the Hotel New Yorker, New York, Jan. 24, it was reported in the blanket trade that openings of all-wool lines would take place about the middle of February. This seemed a happy medium between early openings and unwarranted delay.

At the meeting, over which H. M. Ashby of Kenwood Mills, president of the association, presided, plans for future activities were touched upon. It was consensus of opinion that there were numerous opportunities for merchandising aids which could be developed through the medium of an exchange of ideas.

There was also discussion regarding the idea of creating a quality label for the products of the members of the association, with the purpose of maintaining quality and receiving recognition for such ideals.

There was also reference to the Red Cross coming into the market for a large quantity of cotton blankets in the near future.

•

## *Trend in Men's Clothing Summarized*

In an address before the mechandise managers' division, National Retail Dry Goods Association, in New York, last month, Leo Wolff of Terhune, Yereance & Wolff summarized the current clothes trend for men.

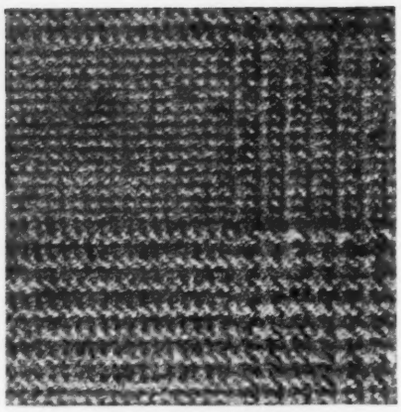
"We are just entering a new clothes era for men," he said, "which favors the Balmacan topcoat, Norfolk coats, reversible topcoats, belted back suits, combination slacks and sport jackets, striped materials in light colors, chalk stripes, and glens. Retailers and manufacturers should cooperate in utilizing these trends."

Mr. Wolff added the idea that to develop the well-dressed man to the point of better support to the market, the manufacturer should begin a campaign on behalf of "the better dressed boy."

•

## *Suggests Wool-Yield Test*

Dr. John I. Hardy, fiber technologist of the Bureau of Animal Industry, U. S. Department of Agriculture, who has been seeking to develop a rapid and inexpensive test for the density of fleece and for clean wool yield to guide the farmer in selecting breeding animals and to aid any others in estimating shrinkage, suggests following procedure: shearing, with clippers, a swath of wool 1 in. wide and 4 in. long from the side of the sheep; weighing the sample; dry-cleaning it by the ordinary dry-cleaning process; and weighing it again. From the difference between the two weights, the percentage of yield of clean, dry wool can be computed for the sample. This percentage, when applied to the weight of the fleece, shows approximately how much clean wool the fleece will yield.



*Type of Glen plaid now popular in fine worsteds for men's wear*

*Fabric is 15/16 oz. Loom weight, 17 oz. max. Warp, 2/30 (64s), 4280 ends laid out about 69 in. wide. Filling, 2/30 (64s), 60 picks. Shrinkage 2% max. Three colors, 4x4 loom, straight 16 harness draw, 2/2 and herringbone variation.*

•

## *Women's Wear Wool Goods Make Good Record*

The 1931 Census of Manufactures (reported in more detail on page 42) shows an increase of 30% in square yards produced of women's wear woolens over 1929 and a par performance in women's wear worsteds, while similar items in men's wear dropped 44% and 13% respectively. This women's wear performance is strong evidence of the spread of wool wearables as fashion-right articles. The women's woolens averaged 10 oz. to the square yard in 1929 and 9¼ oz. in 1931. The worsteds averaged 7½ oz. in 1929 and 6 oz. in 1931.

•

## *Balance Sheet of National Wool Cooperative*

The balance sheet of the Government controlled and financed National Wool Marketing Corp., as at Oct. 31, 1932, shows total assets of $23,716,296, a decline of $22,226,864 from total assets a year ago. The decline is attributed principally to the falling in accounts receivable, which a year ago stood on the books at $54,310,496 as against $22,099,913 as of Oct. 31 last. Accounts payable were down from $26,333,636 to $405,044.

## *Seek to Void Tax on Fur Trimmed Garments*

The Industrial Council of Cloak, Suit and Skirt Manufacturers, Inc., has appealed to the wool goods industry through the National Association of Wool Manufacturers for aid in gaining revision of the emergency Federal Tax levy covering furs so that articles "of which any such fur is the component material of chief value" (now included) might be excluded. The O'Connor bill in the House provides for striking out the quoted phrase from section 604 of the Revenue Act of 1932.

•

## *Australia Ships 10% More Wool*

Wool shipped from Australia from July 1 to Nov. 30, 1932, according to U. S. Trade Commissioner E. C. Squire, Sydney, compares with shipments during the corresponding period of the previous season as follows:

| | 1931 Bales | 1932 Bales | Per Cent Change |
|---|---|---|---|
| United Kingdom | 372,531 | 313,615 | —16 |
| United Kingdom (optional) | 1,926 | 3,604 | +90 |
| Continent | 356,684 | 508,117 | +42 |
| United States | 11,320 | 5,356 | —54 |
| Japan and China | 188,973 | 202,556 | + 8 |
| Other Countries | 1,685 | 2,271 | +38 |
| | 933,119 | 1,035,519 | +10 |

•

## *Canada's Wool Textile Industry Census*

The number of wool manufacturing establishments reporting operations for 1931 numbered 126, an increase of 10 over the preceding year.

A comparison of principal statistics of the wool textile group of industries for 1930 and 1931 follows:

| Item | 1930 | 1931 | Per Cent Change |
|---|---|---|---|
| Establishments reporting, number | 116 | 126 | + 8.6 |
| Capital invested | $42,481,432 | $43,086,674 | + 1.4 |
| Employees on salaries, total number | 674 | 824 | +22.3 |
| Salaries | $1,523,790 | $1,729,524 | +13.5 |
| Employees on wages (average), total number | 7,036 | 7,384 | + 4.9 |
| Total wages | $5,288,717 | $5,696,111 | + 7.7 |
| Cost of fuel and electricity | $632,324 | $648,965 | + 2.6 |
| Cost of materials used | $14,081,829 | $11,491,927 | —18.4 |
| Gross value of products | $27,497,530 | $25,456,037 | — 7.4 |
| Value added by manufacture | $13,415,701 | $13,964,110 | + 4.1 |

•

## *December Consumption*

Wool consumption in December totaled 36,531,968 lb. grease equivalent compared with 38,963,408 lb. in November and 31,624,584 lb. in December, 1931. Of December's consumption 83.1% was domestic wool and almost all of the foreign wool used was carpet wool. With the exception of worsted combs wool machinery was less active in December than in November, but more active than a year ago.

## WOOL IN THIS ISSUE


| | page |
|---|---|
| Warp-Backed Cloths Compared with Filling-Backed | 54 |
| Rabbit Fur Makes Sharp Rise to Popularity | 68 |
| Water Marks—Causes, Prevention and Cure | 69 |
| Matted Fleeces Opened by New Operation | 70 |
| Unsatisfactory Twill in Woolen | 74 |
| Light Waste Ends in Woolen Card | 75 |
| Fulling Sweater Cloth | 75 |


## *Wool Goes Into Pavement*

Word from Sydney, Australia, tells of experiment of using wool in a street paving composition as a means for utilizing fiber of inferior grade. Whether the wool serves any other purpose than to hold the mixture together is not stated. It is still too early to forecast use of carpets on public highways.

Reports from England tell of using shoddy as fertilizer on farm land; said to be successful because of low price and high nitrogen content. If so used on a cotton plantation who can tell what might happen!

•

## *Price Trends in Wool*

The following are prices of key items in the wool industry. Current prices are given with comparisons covering a month ago, a year ago and two years ago.

| | | | — Feb. 1 — | |
|---|---|---|---|---|
| Fine and fine med. territory | Feb. 1 $0.42 | Jan. 3 $0.42 | 1932 $0.53½ | 1931 $0.61 |
| Ohio ⅜s | .19½ | .20 | .23½ | .26½ |
| Texas, 12 mths | .43 | .43½ | .55 | .64 |
| Tops, fine, 64-60s | .60 | .61 | .78½ | .91 |
| Average ⅜s | .51 | .53 | .62½ | .76½ |
| High ½ | .48 | .50 | .52 | .66½ |
| Noils, fine | .34 | .34 | .36 | .44 |
| 2-40s 60s wstd yarn | .90 | .92½ | 1.20 | 1.40 |
| 3192 serge | 1.27½ | 1.27½ | 1.68½ | 1.96½ |

•

## *Wool Mill News*

E. P. Barber Mfg. Co., East Lyme, Conn., sold most of its mill machinery at auction Jan. 4. There were no bids for the property as a whole.

Sanford (Me.) Mills balance sheet for year ending Nov. 30, 1932, indicates a net loss of about $757,000.

Arlington Mills, Lawrence, Mass., for the fiscal year ended Dec. 3, 1932, reports a net loss of $1,111,546. The final quarter showed a profit of $251,000. Sales for the year totaled $7,033,226. The policy of running the mill on orders only has much reduced inventories.

Pemberton Mills, Lawrence, Mass., equipment, consisting principally of looms has been sold to textile interests in Paraguay, South America.

Leicester (Mass.) Woolen Co., Leicester, Mass., has been organized with a capital of 300 shares of stock, no par value, to take over and succeed to the company of same name, with local mill. Thomas E. Ashworth is president of new company, and James Ashworth, treasurer.

Hamilton Woolen Co., Southbridge, Mass., made a net profit of $39,617 for the year ended Nov. 30, 1932, equal to $1.22 per share, on sales totaling $3,710,871. Profit for the previous year was $340,883. At the annual meeting of the corporation stockholders were asked to approve the purchase by the corporation of its own common stock at not exceeding $50 per share for a total not exceeding $62,000. Offers at the lower prices will be accepted first.

Souhegan Woolen Co., Wilton, N. H., recently opened, will manufacture men's worsted fabrics and will be known as the Abbott Worsted Mills.

S. Stroock & Co., New York, reports for the year ended Dec. 31, 1932, a consolidated net loss of $112,875. There was an operating profit before depreciation.

Woolen Corp. of America, New York, reports net profit of $45,808 for the year ended Dec. 31, 1932, comparing with $27,014 for 1931. Turnover for 1932 exceeded that for 1931.

Paramount Woolen Co., Cleveland, Ohio, has been organized and incorporated, with a nominal capital of $1,000. Principals of the new concern are Max A. Samolar, George Pillersdorf and Frank H. Feingold. Headquarters are at 941 Society for Savings Bldg.

Villa Nova Worsted Co., Woonsocket, R. I. Harvey C. Pauley, Woonsocket, has been appointed temporary receiver for this company, in bond of $5,000.

Centredale Worsted Co., with plants at Allendale, Centredale, Stillwater and Olneyville, R. I., is in process of liquidation. It is understood that W. H. Lister, president of the company plans operation of the Stillwater plant. Others are to be sold.

Kimlark Rug Co., Neenah, Wis., has been chartered under State laws, capital not stated, to take over and succeed to company on same name.

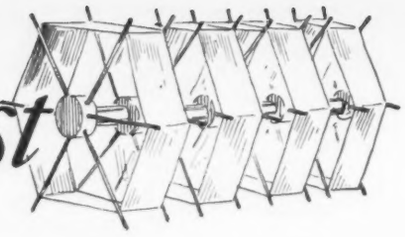
Avalon Fabrics of Canada, Ltd., Stratford, Ont., recently organized, has leased a local one-story plant, formerly used by the Automatic Products, Ltd., and will occupy at once for new mill for the manufacture of plushes, etc.

Downs, Coulter & Co., Ltd., Bradford, England, said to be one of Great Britain's largest textile manufacturing companies, has formed a Canadian subsidiary of which J. W. Downs is president, and plans to establish a mill in the Province of Ontario for production of worsteds, rayon, and cotton textiles. Firm specializes in linings.

Carleton Mills, Ltd., Carleton Place, Ont., has been incorporated by the following parties: L. MacFarlane, Adrian Knatchbull-Hugessen, J. Foster Chisholm, G. H. Hyde and Edmond H. Eberts.

TEXTILE WORLD'S

# *Silk Digest*



AT the annual dinner of the Silk Association, President Gerli faced frankly the silk-rayon situation.

One sentence in his address interested us particularly: "It has been suggested that right now the association is masquerading under false colors and that our name is not truly representative of the activities of our group." The inference, of course, is that a change in name to the Silk and Rayon Association might be taken under consideration.

There is no doubt that a broadsilk mill is, today, something else again. From the standpoint of the individual manufacturer, it doesn't make a great deal of difference whether he makes his money, if any, out of weaving silk or rayon—or both. But, from the standpoint of the association to which he belongs, a formal recognition of the changed status might be helpful.

Incidentally, it should be pointed out that rayon and other synthetic fibers enter into a far broader field than merely the broadsilk mills. Consequently, the inclusion of "rayon" in the title and activities of the Silk Association should be understood as limited to the application of that fiber to the so-called "broadsilk" industry—and not as a step to restrict rayon interest to the relatively narrow association of ideas which it suffered in the "artificial silk" days.

## *Throwsters Institute Holds Annual Meeting*

Members of the Throwsters Research Institute gathered at Stroudsburg, Pa., Jan. 14, heard reports covering the first year of operation delivered by Henry J. Tynan of the Tynan Throwing Co., president, and by Dean, Hill, executive secretary, discussed future plans and resolved to "pass on" the levy if the domestic allotment bill is enacted.

Mr. Tynan stated that, while it has been impossible to maintain prices to the extent hoped for in the face of general business conditions, he felt sure that the Institute had been of considerable assistance in keeping prices and wages up. Touching upon the work that had been done, he emphasized the stimulation given to better throwing, the technical advice on handling rayon, and the instigation of a movement to set up rules governing the throwing of rayon. Concerning the reporting of orders and prices, he stated that in the future only those who supplied information would receive reports and that the figures showed a wide variation in prices; the spread being frequently as great as 10 to 20c. per lb. He also advocated the replacement of obsolete machinery.

In his report, Mr. Hill stated that the industry could not wait for prosperity, but that "with our own hands we must fashion the garment that is to be worn for the next few years." Group action was the only course, he pointed out, particularly since the demand for heavy yarns had markedly decreased the number of spindles necessary to supply the demand for wanted yarns.

Mr. Hill mentioned the activities of the Institute in listing, investigating and adjusting claims; price and volume reporting; the giving of advice on prices to charge for new yarn constructions; and the assistance given in securing salesmen. Looking toward the future, he said that the Institute would sponsor a meeting of representatives of all the commercial laboratories to draw up a manual covering twist tests, that the Institute should continue to give information concerning style and volume trends as an aid to better planning, that group meetings of superintendents and overseers should be held, and that there should be an investigation of the possibility of group selling of waste.

A recent announcement states that Celanese Corp. has joined the Institute as an associate member, thus joining a group of concerns in allied industries which are interested in throwing. Mr. Hill pointed out that it was extremely helpful to have the cooperation of such concerns in working out mutual problems.

The following members of the Institute were elected to the board of governors by which board officers will be elected:

For one year: C. K. Aronsohn, Hatco Throwing Co.; Carlos Baer, The Baer Co.; T. F. N. Gray, Lehigh Valley Silk Mills. For two years: C. H. Knowles, Pen Argyl Silk Co.; John Salandi, Jr., Vulcan Silk Co.; A. G. Schautz, Grove Silk Co. For three years: Joseph Simpson, Columbia Silk Throwing Co.; H. J. Tynan; E. H. Rohr, Duplan Silk Corp.; H. J. Gritman, Gritman Throwing Corp.; W. P. Watson, Watson Silk Co.

•

## *Baker Advocates 40-Hour Week for Silk Industry*

Basing his argument on the state of overproduction that exists in the silk industry, Max Baker, secretary of the Silk Manufacturers' Association of Paterson and also representing the Allentown group, went on record as favoring the abolishment of night work and a compulsory limitation of hours to 40 per week in his testimony before the Senate Judiciary Subcommittee, which has been holding hearings on the Black 30-hour week bill.

Mr Baker stated that he had found practically no manufacturers who were opposed to limitation of hours in the textile industry. He added that without a minimum wage the 30-hour week would be impossible.

•

## *Merger of Silk Exchange With Others Approved*

In accordance with a vote of its members, the National Raw Silk Exchange will merge with the Rubber Exchange, Metal Exchange and Hide Exchange to form a single trading organization known as Commodities Exchange, Inc. As noted in the January issue of TEXTILE WORLD, the plan will make possible substantial savings due to the concentration of four trading rings on one floor.

It is expected that the new exchange will be formally opened in May and until that time each of the four exchanges involved will continue to function as a separate organization. The new exchange will have a paid-in capital of $1,000,000, representing payments of $900 by the old exchanges for each member. The balance of assets in each of the four will be distributed pro rata to members.

•

## *Japanese Government to Have Silk Office in New York*

Considerable interest has been aroused in the trade by the visit to this country of Tatsuji Hara, director of the raw silk bureau of the Japanese Government, in company with Seiji Yoshida and H. Shiga. Mr. Yoshida will establish a branch office in New

York for the raw silk bureau of his government.

In addition to assisting Mr. Yoshida in establishing the branch office, it is understood that Mr. Hara will make a study of the possibilities of a promotional campaign to increase the usage of silk in this country.

•

## *Silk Employment Higher in December*

Employment increased 9.4% in the silk industry during December as compared with the previous month, according to report of the Silk Association of America, and was 7.1% higher than December, 1931. Broad silk loom employment increased 7.3%, narrow silk loom employment decreased 12.9% and spinning spindle employment increased 13.9% during December as compared with November. Machinery operations during December increased 9.2% for broad looms, decreased 24.5% for narrow looms, and increased 6.3% for spinning spindles.

•

## *Belding-Corticelli, Canada Shows Increased Earnings*

Net profit of $103,962, for the fiscal year ended Nov. 30, 1932, is reported by Belding-Corticelli, Ltd., Montreal, Canada, after deducting $146,609 for depreciation, $36,980 for bond interest, $14,790 for sinking fund, and $3,000 for a special advertising fund. This compares with net profit of $73,913 for the previous year. Income from investments is included in the figures for both years.

•

## *Raw Silk Prices Drop 22c. in January*

Continuing the decline which set in the second week in December, raw silk prices dropped an average of 22c. per lb. during January and were about at the all-time low level established last June. As previously noted, the decline for December averaged 15c. per lb.

The difficulties of the Japanese Government have undoubtedly been the greatest outside influence on the market. As far as the domestic situation is concerned, the greatly increased use of rayon and acetate yarns in the popular rough crepes and heavy sheers is stated by many to be the principal cause for the decline. It may be, however, that this development has been over-emphasized. There is no question that on certain constructions rayon fabrics enjoy a differential of over 10c. per yd., as compared with silk fabrics, but silk consumption, taken as a whole, has not declined to the extent market gossip would indicate and a certain portion of the rayon goods now woven in silk mills has replaced rayon fabrics formerly woven in cotton mills, rather than displacing silk fabrics.

## SILK IN THIS ISSUE


| | Page |
|---|---|
| Rayon Issue Dominates at Silk Dinner | 41 |
| Analysis Effects Economies in Winding Silk | 52 |
| Bedford Cord and Its Counterparts | 62 |
| Warp Streak in Satin | 75 |
| Atwood Feed Rolls | 77 |


## *January Silk Deliveries Up*

Deliveries of silk in January amounted to 46,204 bales as compared with 40,548 bales in December and 48,432 bales in January, 1932. Total for the year 1932 was 553,818 bales as compared with 594,889 bales in 1931, according to the Silk Association.

•

## *Stehli Silks Corp. Joins Greyco Sales Corp.*

Announcement was recently made that the Stehli Silks Corp. will henceforth sell its greige goods through the Greyco Sales Corp., an organization which is already handling the greige goods of the Allentown Silk Co., Bloomsburg Silk Mill, David Silks, Inc., Dundee Textile Co., Duplan Silk Co., C. K. Eagle & Co., Kattermann & Mitchell Co., Piedmont Silk Co., Wm. J. Schepp, Inc., Schwarzenbach, Huber & Co., Stunzi Sons Silk Co., and Susquehanna Silk Mills.

•

## *B. Edmund David, Inc., Becomes David Silks, Inc.*

David Silks, Inc., a new corporation, has succeeded to the business of B. Edmund David, Inc., located at 180 Madison Ave., New York. The business will be continued along the same lines. Croyden Fabrics is no longer a department of the David company but is operating independently with offices at 215 West 39th St. It will cater to the better dress trade with prints and pure dye fabrics.

•

## *Uptown Credit Group Elects Officers*

At the annual meeting of the Uptown Credit Group of the Textile Industry, which is associated with the Silk Association, the following officers were elected: honorary chairman, W. G. L. Betsch, Wm. Iselin & Co.; chairman, A. W. Hamilton, Commercial Factors Corp.; vice-chairman, Samuel Bertcher, Edmund Wright Ginsberg Co., Inc.; treasurer and secretary, Ramsey Peugnet, secretary of the Silk Association; recording secretary, Charles A. Knisel, Schwarzenbach Huber Co.

•

## *Silk Price Tables*

The following prices of key items reflect the downward trend in silk quotations:

| | Feb. 1 | Jan. 3 | Feb. 1 1932 | Feb. 1 1931 |
|---|---|---|---|---|
| Crack XX 13/15 white 78% | $1.22 | $1.50½ | $1.85 | $2.90 |
| Tram, 5 thd Japan 85% | 2.00 | 2.25 | 3.15 | 4.30 |
| Crepe 3-4 thd 1½/18 Bob. | 1.90 | 2.10 | 2.30 | 2.95 |
| 60s-2, spun silk | 2.50 | 2.50 | 3.45 | 3.35 |

•

## *Silk Mill News*

C. Stuart McLean, Danbury, Conn., president-treasurer of the new Stuart Silk Mills, Inc., has announced the company has secured the plant of the Imperial Silk Mills, and is producing silk bands.

Cheney Bros., South Manchester, Conn., are negotiating to sell the South Manchester Railroad, a private line to Hartford, 1.94 miles in length, to the New York, New Haven & Hartford Railroad. The railroad was chartered in 1866 and has always been owned and operated by the Cheney organization. Passenger service was discontinued on Jan. 26. The line will continue to operate its freight service.

Willow Silk Co., Paterson, N. J., has purchased the Brush Building in Slatington, Pa., and will remove equipment from Paterson into it. It is said that employment will be given to about 100 persons when the plant is ready. The Slatington Chamber of Commerce raised money to defray cost of moving the equipment.

M. Weiss Silk Co., Paterson, N. J., has been organized with capital of 500 shares of stock, no par value, to take over and succeed to the company of same name.

Wahnetah Silk Co. has acquired the Littlestown Silk Co., the Chessauqua Silk Co., Chester, Pa., and the W. R. Hoehn Silk Co., Williamsport, Pa.

Kutztown (Pa.) Silk Corp. resumed operations at its mill at Fleetwood, Pa., following shutdown for about a year. About 100 persons are being employed.

Albemarle Weaving Co., Charlottesville, Va., has started up its new dyeing unit. This addition to the finishing plant and the new warehouse cost approximately $50,000.

Fredericksburg (Va.) Silk Mills, formerly owned by Klotz Throwing Co., but now owned by General Textile Mills, Inc., which has been closed for about a year is preparing to start up. The plant at one time employed 200.

TEXTILE WORLD'S

# Rayon Digest

THE synthetic fiber industry, for the second successive year, has cooperated in the compilation of official statistics. The result is printed elsewhere in this issue.

This activity reflects a cooperative attitude which is encouraging. More than that, the figures themselves furnish tangible evidence of the remarkable improvement which developed in the latter part of the year. Since our interest in the progress of the industry is infinitely greater than is our pride in our own statistical, or prophetic, accuracy, we are delighted that the total quantity actually produced in 1932 materially exceeded the estimate made by us in September.

Rayon has a way of staging a "come-back." Probably its accomplishment in this direction last year was its best performance to date.

## *Quality Control Plan Gains Converts*

Commenting on the progress that has been made in popularizing the company's quality control plan in retail stores, John A. Spooner, merchandise director of the Viscose Co. states:

"The Quality Control Plan of the Viscose Co. enters the third year of operation having successfully accomplished the second and most important step in its program—the education of the retailer to the selling advantages afforded by the tested-quality grade mark for rayon merchandise. In tune with the general swing towards quality merchandise, retail buyers have accepted the plan of presenting rayon merchandise pre-tested for quality at the buying source rather than by the store itself.

"It seems likely that the swing back to rayon, which is noted in the salons of the Paris contouriers, may be due to standards of quality and measurements that have been promoted by yarn manufacturers and endorsed by leading fabric houses. Retailers, naturally, have observed these developments and have grasped the significance of the potential profits which are now obtainable in all fields of tested-quality rayon merchandise.

"While the introduction of the plan to retailers has been progressing, more manufacturers of rayon goods have been added as licensees so that the list now numbers 62 and includes representatives of practically all classifications of manufacturers in the rayon industry.

"The progress of the plan during 1932 has demonstrated that retailers welcome our efforts in aiding them to sell more rayon merchandise and that the tested quality movement is applicable to their problems of re-instating rayon goods to a more profitable position."

•

## *Rayon Demand Slackens*

The holdup in production of low-priced dresses, due to trade difficulties, was the principal feature of the rayon market as the month opened. Converters and weavers were inclined to go slow until the situation cleared. Otherwise the easing of demand was about as expected.

Although orders for March delivery were surprisingly heavy when the books were opened the first of January, demand tapered off as the month progressed and total sales, while satisfactory, were lower than previous months. Most of the producers have orders enough on the books to run them until the end of February and expect to pick up enough business this month so that there will be little accumulation of stock from March production.

•

## *Notes on French Rayon Situation*

The long-time rivalry between rayon and silk in Lyons, the "silk city" of France, appears to be at an end. New York textile firms have been advised in private messages of a sort of truce effected between the two industries there. The silk trade of Lyons has fought rayon perhaps more bitterly than any other silk group in the world, their activity once crystallizing in the organization of a "committee of defense." Now, however, rayon is being accepted as a textile which helps rather than hurts Lyons' prestige. Plans are reported pending in the French Parliament to forbid the use of the term "artificial silk."

Another report states that a new French company has been formed to work with the German Sales Bureau in settling matters of price and the amount of French viscose yarn that may be sent into Germany—at present 6% of German consumption. The new company has the official title of Alliance des Producteurs-Exportateurs de Soie Artificielle, but will undoubtedly be referred to as A. P. E. S. A.

•

## *Industrial Rayon 1932 Profit $237,251*

Net profit of $237,251, after taxes and other charges, is reported by the Industrial Rayon Corp. and subsidiary for the year ended Dec. 31, 1932. This compares with net profit of $683,891 the previous year.

Current assets are listed as $5,525,287, in the current statement, the total cash being $384,402 and government securities $3,561,420. A note at the bottom of the balance sheet states that prior to Jan. 13, 1933, $1,245,750 of the above bonds were converted into cash and certificates of deposit. Current liabilities total $640,048. Profit and loss surplus of $4,543,747 compares with $4,673,004 the previous year, while capital surplus of $2,170,138 remained same; $366,511 was paid in dividends.

In his report to the stockholders, Hiram S. Rivitz, president, stated, in part: "In our semi-annual report of June 30, 1932, we showed a net loss covering operations for the first six months of $114,812, which was due in part to a write-down of $250,000 in inventory, and $112,000 in credits issued to customers by reason of a price guarantee which was then in effect in the entire rayon producing industry, and which has since been withdrawn.

"Our plants were shut down during the month of July, as were other rayon producing plants in the country, some for longer periods. Market selling prices dropped approximately 33⅓% during that period, and the loss sustained by reason of the period of inactivity by every rayon producing plant in the country was abnormal. In our case it represented loss of $182,000."

•

## *Klein Warns Rayon Industry to Go Slow*

A warning against too rapid expansion of the rayon industry was sounded by Dr. Julius Klein, assistant secretary of the Department of Commerce, speaking at the annual dinner of the Industrial Rayon Corp. He recommended healthy growth and particularly careful study of market trends so that production could be properly gaged.

## *Rayon Intrenched In High Styles*

Commenting on the acceptance of rayon and acetate fabrics by the leading dressmakers of Paris, and on their increased popularity in this country, the Du Pont Style Service makes the following interesting statement:

"For years the best minds in the business worked hard to produce materials which would suit the needs and desires of the leaders of fashion. This meant, naturally, obtaining public acceptance for their materials because of beauty, suitability and style leadership. This condition has been achieved."

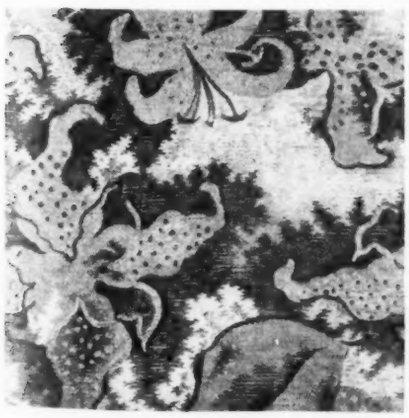
Coupled with the large demand for synthetic yarns which developed last summer, such style acceptance should cause satisfaction to producers, the Style Service reports.

In this country, dull, crinkly crepes are expected to continue as the leading fabric, although weights for spring will be lighter and with less stretch. Next in importance for spring wear are the ribbed weaves in a variety of constructions. Other fabrics of style importance are: matelasses, which are expected to reach a new peak of popularity; satins for afternoon and evening wear; fur-pile novelty fabrics; classic prints.

•

## *Canadian Celanese Sets Sales Record*

Sales of Canadian Celanese, Ltd., exceeded $5,000,000 during 1932 and set a new peak for this company according to reports. Considering the lower price level which prevailed during the year, the increase in value represents an even greated increase in quantity of merchandise sold. Plants of the company operated at, or near, capacity during the period. Although the financial statement was not available at time of going to press, it is presumed that satisfactory progress has been made in that directors of the company recently voted a disbursement of 1% on the arrears of preferred stock dividends.



*Rayon damask (Stead & Miller) designed by Marguerita Mergentime and used as wall covering in women's "powder room" in Radio City Music Hall, New York. Colors are pastel-gold and blue-green*

## RAYON IN THIS ISSUE


| | page |
|---|---|
| Rayon Issue Dominates at Silk Dinner | 41 |
| Rayon Production Only 10% Below 1931 | 43 |
| Analysis Effects Economies in Winding Rayon | 52 |
| Bedford Cord and Its Counterparts | 62 |
| Lubricating Rayon Yarn | 74 |
| Rayon Pot Spinning Machine | 77 |


## *Bemberg Shipments Increased 20%*

An increase of 20% in shipments of Bemberg yarns during 1932 as compared with 1931 is reported by S. R. Fuller, Jr., president, American Bemberg Corp. Commenting on the substantial increase in variety and yardage of fabrics of Bemberg marketed by leading silk houses during the past six months, Mr. Fuller said:

"During the last year synthetic yarns were brought into volume competition with natural fibers on the basis of quality rather than on the basis of price exclusively. The upward trend in demand for novelty rough weaves calling for pure-dye fabrics has afforded unusual opportunity for profitable promotion of high quality synthetic fabrics.

"Many fabrics created of synthetic fibers and synthetic fiber mixtures stand entirely on their individual merits from both style and quality points of view in the various price ranges. Uncertainty regarding silk prices has further contributed to the interest of fabric houses in the profit possibilities of quality synthetics.

"It is interesting to note also that definite progress has been made in the underwear and hosiery fields, where new developments in the manufacture of the yarn have widened the scope and increased the use of Bemberg, particularly in the warp knit industry."

•

## *Tenney Offices Moved*

A. M. Tenney Associates, sole selling agents for Tennessee-Eastman Corp. acetate yarns, have removed their offices to the penthouse of the same building in which they have been previously located, 171 Madison Ave., New York. The move triples the space occupied by the Tenney offices and affords excellent lighting arrangements.

•

## *Celanese Introduces Suiting Material*

Something new in the way of a lightweight summer suiting for men made its appearance this month when the Celanese Corp. of America exhibited a line of suiting materials and suits. The fabrics are of two types. In one the regular Celanese yarn is used in a plain weave, while in the other spun-Celanese is used in conjunction with continuous filament yarn. Several numbers, had both warp and filling of the two yarns twisted together.

Advantages claimed are that the material does not crease easily and that it launders and dry cleans readily. The fabrics shown were in off-white shades and in dark blues which resembled lightweight worsteds in appearance. Hart, Schaffner & Marx and J. Schoenemann, Inc., will have a lines of the suits to retail at $18 to $22.

•

## *Rayon Price Comparisons*

The following are prices of pivotal rayon yarn numbers. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

| | | | — Feb. 1 — | |
|---|---|---|---|---|
| Viscose Process | Feb. 1 | Jan. 3 | 1932 | 1931 |
| 75 denier (18-30 fils) | $0.90 | $0.90 | $1.20 | $1.35 |
| 100 denier (40 fils) | 0.75 | 0.75 | 1.00 | 1.10 |
| 150 denier (40 fils) | 0.60 | 0.60 | 0.75 | 0.75 |
| Acetate Process | | | | |
| 150 denier | 0.75 | 1.00 | 1.00 | 1.85 |
| Cupra Process | | | | |
| 150 denier (112 fils) | ..... | ..... | .90 | 1.10 |
| Nitro Process | | | | |
| 150 denier | 0.65 | 0.65 | 0.75 | 0.75 |

•

## *Rayon Mill News*

PONEMAH MILLS, Taftville, Conn., is changing its cotton textile machinery to manufacture rayon products. F. B. Ricketson, agent of the plant, states that there appears now to be a more permanent demand for rayon dress goods and it is in line with this demand that the changes are being made at the mill. No new equipment will be necessary.

CENTRAL FALLS (N. C.) MFG. CO., according to unofficial reports, has been formed by J. Spencer Love and associates, of Burlington, N. C., to operate the plant formerly run as a branch plant of the Pennsylvania Textile Mills, Inc. It is understood that 200 looms for rayon weaving will be installed. Officers of the new company are: J. Spencer Love, president; A. Glenn Holt, secretary; E. H. Wilkins, treasurer; and T. H. Burkhardt, supt.

INDUSTRIAL RAYON CORP., Cleveland, Ohio, has awarded general contract to George A. Rutherford Co., Cleveland, for construction of two new wing additions to its administration building, totaling about 9,000 sq.ft. floor space, estimated to cost over $75,000, with equipment.

DU PONT RAYON CO., Waynesboro, Va., following the policy of other units in the du Pont organization, has gone on a 40-hour week basis, employing 100 additional operatives. Salaried employes are on a 5-day week basis.

TEXTILE WORLD'S

# Knit Goods Digest

IF our personal experience may be taken as representative, a hosiery manufacturer can find an excellent merchandising clinic within his social circle.

From gossip around the bridge-table nowadays, we surmise that women are becoming "fed up" with cheap hosiery. A house-wife is one of the most exacting budget-directors under present conditions—and she has been forced, out of necessity and out of conviction, to try to save family pennies by yielding to the "reduced price" appeal. But she has learned something: that much of the hosiery she can and does buy is a burden upon, rather than a help to, the household budget.

We believe she's in the mood to boycott junk. And the manufacturer would do well to remove his product from the sphere of that boycott.

## *Plan Standards Governing Hosiery Selling*

As a means of escaping the intensive competition on certain lines of hosiery, a movement is under way to set up standards governing the construction of better-selling numbers. It is believed that if a number of large manufacturers will agree to conform to standards and submit their merchandise periodically for inspection it will go a long way toward eliminating certain abuses, such as calling a 39-gage stocking a 42-gage, that have become prevalent. A meeting is planned to take place in Philadelphia but up to time of going to press no definite date had been set.

•

## *Submit Hose Length Commercial Standards*

The recommended standard lengths for practically all types of hosiery, which have been worked out by the Bureau of Standards and the National Association of Hosiery and Underwear Manufacturers, have now been submitted to the industry for approval. Manufacturers are urged to record their approval with the Bureau of Standards so that the lengths may be declared commercial standards.

•

## *Union to Make Economic Study*

The executive board of the American Federation of Full Fashioned Hosiery Workers' Association, at a meeting in January, authorized the officers of the association to secure the services of an economist in order that a survey of financial conditions in the industry might be made. According to the union, the plan is to see if there is not some way by which bankruptcies and shut-downs—with resulting unemployment—can be avoided through loans.

•

## *Swimsuit Prices Down About 20%*

The latter part of January saw swimsuit prices 15 to 20% less than those prevailing a year ago. As a specific example of the trend, a popular number of the Jantzen Knitting Mills is now priced to retail at $3.95 as against $5 last year. Lastex numbers command good prices and the most popular types are expected to retail between $5 and $7.

•

## *The Statistical Situation*

Orders for hosiery received during November, 1932, showed the usual seasonal decline as compared with October, according to figures released by the Department of Commerce. Of greater interest is the comparison with November, 1931. Production for November, 1932, was 5,573,556 doz. pairs, as compared with 4,318,455 for November, 1931; orders were 5,025,389 against 4,616,788; and shipments 5,506,136 against 4,492,505. Stocks on hand at the end of the month were 7,936,145 doz. pairs in 1932 as compared with 8,819,567 in 1931.

The most significant fact in the underwear statistics for November, 1932, is that new orders were considerably higher than for the same month in 1931, the actual increase being from 1,121,810 doz. to 1,410,635. Unfilled orders at the end of November, 1932, amounted to 1,611,140 doz. as compared with 1,246,431 doz. at the end of November, 1931.

•

## *Hosiery Market Seasonally Dull*

As is to be expected at this season of the year, there is little activity in the hosiery market. Some interest has been aroused by predictions that service weight full-fashioned stockings will be in larger demand, due to the desire of women to secure the greatest amount of wear for a given expenditure. Of interest in this connection is the rumor that Gotham will bring out a service weight non-run.

•

## *Knitting Mill News*

UTICA KNITTING MILLS, Anniston, Ala., have awarded general contract to the Duke-Stickney Co., Anniston, without competition, for construction of a three-story addition at Twenty-first St. and McCoy Ave., 42x500 ft., to cost over $50,000.

N. L. BIRGE Co., Bristol, Conn. (men's flat cotton and woolen underwear), mill was swept by fire Dec. 30 with loss estimated at $50,000, a few hours after the assets of the company had been sold. It had been closed for a year.

SOUTHLAND KNITTING Co., Macon, Ga., is installing new machinery for the knitting of sweaters.

FLEMISH KNITTING MILLS, INC., Brooklyn, N. Y., have been organized with capital of $10,000, to operate a local knitting mill. The incorporators include Moses Bergman and Jerome Weitsen, 4724 Ave. K.

## Textile World Guide

*Details of exhibits at Knitwear Industrial Exposition, Grand Central Palace, New York, Feb. 13-17, follow:*

**American Silk and Rayon Journal,** New York. Booth 85a. Textile publishers.

**American Woolen Co., Inc.,** New York. Booths 90, 91. Display wide range of yarns for knitted outerwear. Representative: N. McLellan.

**H. Brinton Co.,** Philadelphia. Booth 73. Makers of various types of ribbers, jersey machines, plain and fancy stitches, sweater machines, rib and jersey types, rib-body machines for underwear and bathing-suits, and special knitting machines from $\frac{1}{4}$ in. to 36 in.

**Clifton Yarn Mills, Inc.,** Clifton Heights, Pa. Booth 103. Show extensive range of novelty yarns and fancy twists for spring stylings. Line includes zephyr chenilles, loop yarns, fine rayon ratines, angel skin combinations, Durene novelties, cotton and rayon ratines and knop yarns and rayon frills. Display will introduce new yarn, "Crevette," and include a showing of new lines of spring apparel.

CHARLES H. LEVITT KNITWEAR CO., INC., New York, has leased space in building at 149-51 West Thirty-sixth St., and will remove knitting plant from 1200 Broadway to new location, where capacity will be increased, space providing about double floor area.

ADAMS-MILLIS CORP., High Point, N. C., is installing in their new throwing plant, full equipment of universal No. 30 cone winders for winding cones for the full-fashioned machines.

B. F. STEWART, for sometime vice-president and manager of the Mt. Pleasant (N. C.) Hosiery Mills, has leased the knitting department of the Southern Mercerizing Co., Tryon, N. C., for the manufacture of a mercerized cotton hose.

FEDERAL KNITTING MILLS, Cleveland, Ohio, reports a 15% increase in 1932 sales over 1931. Earnings amounted to $6.43 per share of stock against $4.08 in 1931.

LEHIGH SILK HOSIERY MILLS, Philadelphia, in receivership, have realized $147,075 so far with about $6,970 worth of items left for the receivers to dispose of. Receivers will make final report on March 26.

MAYFAIR HOSIERY MILLS, Philadelphia, has been released from equity receivership on petition of the receivers and the creditors.

GLOBE MILLS, INC., West Leesport, Pa., plan construction of a two-story addition, 24x125 ft. Six new knitting and 12 new sewing machines have already been installed in the existing building.

BRUMBACH & MILLER, INC., Reading, Pa., operating a local hosiery mill. An involuntary petition in bankruptcy has been filed against this company.

BRISTOL (Tenn.-Va.) KNITTING MILLS, INC., is the new name of the corporation formerly known as the HIGH ROCK-BRISTOL CO., INC., of which J. H. Fleming is president, and B. W. Horner, secretary.

PANNILL KNITTING CO., Martinsville, Va., is said to be planning construction of an additional building to give 20,000 sq.ft. of floor space.

## KNIT GOODS IN THIS ISSUE


| | page |
|---|---|
| Outerwear Show and Convention Held in New York | 39 |
| Cut-Presser Figures—Spring-Needle Design | 46 |
| Underwear Knitters Reorganize Under a New Name | 49 |
| Textile Projector Shows Knitted Fabric Defects | 66 |
| Fulling Sweater Cloth | 75 |
| Single-Head Full-Fashioned Hosiery Machine | 76 |


## to Outerwear Show

**Crawford Mfg. Co.,** New Brunswick, N. J. Booth 14. Show automatic stop-motions for knitting machines. Representatives: Alfred Crawford and Frank Crawford.

**Davison Publishing Co.,** New York, N. Y. Booth 129. Textile publishers.

**Dearnley Bros. Spinning Co.,** Philadelphia. Booth 77. Display varied range of worsted yarns.

**Jules Desurmont Worsted Co.,** Woonsocket, R. I. Booth 72. Show line of French worsted yarns. Representatives: Eugene Bonte, Walter W. Skerry, and C. M. Patterson.

**Frank W. Gorse Co.,** Needham Heights, Mass. Booth 85. Show covered rubber thread for knitted outerwear manufacture.

**The Grisman Co.,** New York. Booth 107-8. Yarns for knit wear manufacture.

**Howes Publishing Co.,** New York. Booths 93-4. Textile publishers.

**Jacquard Knitting Machine Co., Inc.,** Philadelphia, Pa. Booth 122. Circular jacquard knitting machine, featuring circular jacquard links-and-links machine, and new merchandise made on the latter. Representative: H. Albertman.

**E. W. S. Jasper,** New York. Booth 126. Samples of imported needles for all types of knitting machines. Needles manufactured by Ernst Beckert, Com.-Ges., Chemnitz, and Theodor Groz & Soehne, Ebingen, Germany. Representatives: E. W. S. Jasper and B. Walter.

**A. Kimball Co.,** New York. Booth 59. Feature sizes and styles of price-marking tickets, equipped with silver-tipped pins. Also display small compact marking-machine, the Midget, which marks tickets automatically; this machine made in two models, hand and motor operated.

**Walter E. Knipe & Sons,** Philadelphia. Booth 77a. Bleachers and dyers of woolen, merino and worsted skein yarn and worsted tops.

**Knitted Outerwear Age,** New York. Booth 89. Textile publishers.

**N. Lands,** Long Island City, N. Y. Booth 124. Rayon, rayon ratines, thrown and dyed silk. Representatives: N. Lands, Louis D. Silberman, Ben Silverman and Herman Burstein.

**Masurel Worsted Mills, Inc.,** Woonsocket, R. I. Booth 75. Fancy yarns, featuring chenilles, ratines, boucles, angora and cashmere. New products: Masurel-Lastex and other novelty yarns. Representatives: Robert C. Brice, Theodor Quasebart, Edouard Dauray, Bert Bouthilette, and Arsene Valois.

**Mayfair Yarncraft,** New York. Booth 69. Yarn display of worsteds, zephyrs, angoras, alpacas, mohairs, cashmeres, camel hair and novelties. Representative: Glenn E. Osborne.

**Melliand Textile Monthly,** Brooklyn, N. Y. Booth 87. Textile publishers.

**Merrow Machine Co.,** Hartford, Conn. Booth 125. Manufacturers of high-speed machines for trimming and overseaming, hemming and overedging, for work on all kinds of knit goods. Show in operation machines for seaming, blind stitching, hemming, plain and ornamental edge finishing operations on knitted outerwear. Representatives Merrow Sales Corp. of New York.

**Namm & Singer, Inc.,** New York. Booth 65a. Manufacturers of buttons, buckles and slides. Show general products for knitwear industry. Representative: Joseph Namm.

**New Brunswick Needle Co.,** New Brunswick, N. J. Booth 14. Display knitting machine spring needles, sinkers, slides, jacks, transfer points or quills, sley points, traverser points, and guides, etc. Representatives: Alfred Crawford, Frank Crawford, Jr., and K. Kissling.

**Queens Machine Corp.,** Brooklyn, N. Y. Booth 104. Show one full automatic links-and-links knitting machine in operation, and circular tubular machine with automatic electric stop-motion in operation. Emphasize take-up rollers provided with durable suregrip, oil and water-proof rubber; new device whereby machine stops automatically if fabric tears; new racking system providing a two, three, four and five needle rack stitch in one body controlled by chain in different heights; non-slip "V" belt drive claimed to be noiseless, durable, compact and economical. Representative: Michael Zimitz, and assistant.

**Reece Button Hole Machine Co.,** Boston, Mass. Booth 106. Reece button hole machines in operation, featuring model 101 cord trimming machine. New product: Model 101 machines. Representatives: Joseph Pikul and Ralph A. Collins.

**Robaczynski Machine Corp.,** Brooklyn, N. Y. Booths 97-99. Show purl stitch or links-and-links power knitting machine equipped with improved type of jacquard pattern mechanism. Features combination racking device to make two or three different racks in the same garment; also skip-pattern jacquard card device. Representatives: L. Robaczynski, E. Masin, and J. Walter Huntemann.

**Schumer & Friedman,** New York. Booth 60. Novelty yarns for knitted sportswear; also rayon yarns. Fancy yarns featured. Representatives: Messrs. Friedman, Spinner and Zimmerman.

**Harry Schwartz,** Brooklyn, N. Y. Booth 34. Novelty yarns. Representatives: Harry Schwartz, David Schwartz and Julius Green.

**Singer Sewing Machine Co.,** New York. Booth 117. Latest machines developed for knitwear industry, including 99W-class buttonhole machine equipped with trimmers for automatically cutting threads and cord after stitching; also the 81-53 new high-speed machine with automatic lubricating system for overedging loosely woven and lightweight knit goods.

**Textile World,** New York. Booth 76. Textile publishers.

**Waterman, Currier & Co., Inc.,** New York. Booth 65. Cotton yarns, Durene, mohair, fancy rayon and cotton specialty yarns for knitwear. Representative: Sidney Siegel.

**Thos. Wolstenholme Sons & Co., Inc.,** Philadelphia. Booth 71. Booth for reception purposes only. Representatives: L. F. Schaeffer and F. S. Krecker.

TEXTILE WORLD'S

# *Processing Digest*

RECENT progress in processing cotton and rayon offers a serious challenge to the wool dyer and finisher. In the past wool has been considered the pre-eminent raw material for manufacturing a wide variety of fabrics. This is due to the fact that for many purposes the natural properties of wool have given it obvious advantages. Today, however, we have fast dyed cotton-piece goods which have been creaseproofed, pre-shrunk, rendered wool-like in appearance and handle. King Cotton is now making inroads into the realms in which hitherto wool has ruled supreme.

If manufacturers of woolens and worsteds are to maintain any vestige of their present position in the textile world, it is necessary that they enlist in their forces the chemist and physicist. Research which will lead to methods for enhancing the desirable properties of wool and for modifying those which are undesirable, is the most effective weapon to employ in the battle which wool must wage against the vegetable and synthetic fibers.

## *Committee on Shrinkage Control*

The problem of control of fabric shrinkage is becoming an increasingly serious one in the textile industry. In addition to the scientific aspects of the problem, there are many merchandising questions. In order to coordinate the activities of various associations and firms, particularly from the merchandising angle, the Textile Section, of the New York Board of Trade, under the chairmanship of Dr. M. Leo Gitelson, has issued a call for a special committee on shrinkage control. It is not intended that this committee shall engage in any scientific research, but that it shall concentrate on setting up definite standards to be utilized and to obtain the maximum benefits from whatever scientific experience has already been accumulated.

Definite acceptances to serve on this committee have been received from American Association of Textile Chemists & Colorists, Laundry Owners' National Association of the United States and Canada, National Retail Dry Goods Association through its Better Fabrics Testing Bureau. The Textile Fabrics Association, National Association of Finishers of Textile Fabrics, and the United States Institute for Textile Research have agreed to be represented subject to definite designations by their executive committees. Merchants are represented by J. Frederick Talcott, of James Talcott, Inc.; Chas. L. Bernheimer, of Bear Mill Mfg. Co.; John Van Riper, United Piece Dye Works; and Dr. M. Leo Gitelson, of Nehemiah Gitelson & Son. Several other organizations have accepted tentatively, and a report as to the definite organization of the committee will be made shortly.

•

## *Shrinkage Tests*

Increased production of pre-shrunk cotton goods has emphasized the necessity for a standard method for determining the amount of shrinkage which may be expected in fabrics upon laundering. One test now in use is that of the U. S. Bureau of Standards; another is the tentative test adopted by the American Association of Textile Chemists and Colorists. A drawback to the latter method is its slowness; Howard D. Clayton, of Cluett, Peabody & Co., Inc., writing in the *Daily News Record* describes a modified procedure which overcomes this objection.

The method proposed by Mr. Clayton is essentially as follows: On a sample of the fabric to be tested, approximately 20 in. long and the full width of the goods, mark off accurately 18 in. in both warp and filling directions, using an indelible ink which will not wash out during the laundry process. Place the sample in a small wash wheel of the cylindrical type; tumble in hot suds (which is momentarily brought to the boiling point) for 40 min.; give one 5-min. rinse and one 10-min rinse at 140° F.; and then, after the water has been removed, give a final 5-min tumbling of the wet cloth. Squeeze the sample by hand, without stretching, place on a screen, and dry in a suitable dry room. After drying, dampen the sample slightly, press with a hot iron, taking care not to stretch the goods. Measure the marked-off portions of the sample; and calculate shrinkage in percentage or in inches per yard, as desired.

•

## *Finishing Activity*

Figures released by the National Association of Finishers of Textile Fabrics show printing at 73% of normal capacity in Dec., 1932, as compared with 65% in Nov. Other percentages are white and dyed combined, 42% for Dec. against 47% for Nov., fast black, 16% for Dec. and 21% for Nov., logwood and sulphur black, 23% for Dec. against 22% for Nov.

•

## *Textile Research*

The Textile Foundation is now issuing a series of news releases describing the investigations now being carried out by research fellows of the Foundation. These reports are non-technical in character and are intended to give the general public an appreciation of what is being done through scientific research on textiles. Reports released thus far deal with the studies by A. N. Rogers, at Lehigh University, on the "Effect of Bacteria and Vegetable Oils on Silk"; those by Dr. Donald R. Morey, at Cornell University, on "Application of Polarized Light to Textile Research"; and those by O. W. Pineo (in collaboration with Prof. Arthur C. Hardy) at Massachusetts Institute of Technology, on the "Spectrophotometric Analysis of Dyed Materials."

•

## *Thickener and Emulsifier*

A new product of vegetable origin, which can be employed as a thickener, emulsifier, stabilizer, or protective colloid, has been placed on the market recently by Kem Products Co., Newark, N. J. This material, known as Kem 222, is neutral in reaction and in 2% concentration gives a smooth, colorless paste which will barely flow. It is recommended for use in printing and various other textile applications.

•

## *Laventine HW*

General Dyestuff Corp., 230 Fifth Ave., New York, announces Laventine HW. This product, which supplants Laventine KB, is a new type of grease solvent. The following advantages are cited for it by the manufacturers: It has a neutral reaction; lathers strongly; possesses detergent action like soap; is stable to lime, acids, and alkalis; prevents the precipitation of and dissolves lime soaps; remains unaffected by salts

of iron, manganese, copper, nickel, calcium, magnesium, and zinc; and may be used in bleaching powder baths. Laventine HW is recommended particularly for washing materials containing a large percentage of oil which is difficult to scour out in the ordinary way. It is generally used with soap; but in special cases, where soap is not desirable on account of its alkalinity, it may be used alone.

•

## New Organization of Dyers and Printers

Incorporation of the Institute of Dyers & Printers, a new organization of silk dyers and printers, was announced late last month. The objects of the Institute are to consider and act on problems of the dyeing industry, dealing with tariff, traffic, transportation, legislation, insurance,, welfare of employees, labor disputes, credits, financial responsibility of customers, cost accounting, trade practices, etc. The articles of incorporation state that any firm in the United States engaged in the dyeing, printing, processing or finishing of textile fabrics is eligible for membership.

Trustees are Theodore Boettger, president, United Piece Dye Works; Robert Wyder, president, Textile Dyeing Co. of America; Bernard R. Armour, president, Associated Dyeing & Printing Corp.; G. H. Conze, Sunbury Converting Works; William P. Aldrich, president, Waldrich Co., and Charles L. Auger, president, National Silk Dyeing Co.

Other firms listed as incorporators include International Dye & Print Works, by Herman Geller, president; Cretona Print & Dye Works, by F. A. Korty, vice-president; Lyons Piece Dye Works, by M. Cramer, treasurer; Apex Oriental Corp., by Walter Neale, president, all of Paterson; William Willheim & Co., by William Willheim, president, both of Passaic, and C. K. Eagle & Co., a Pennsylvania concern, by its vice-president, Charles C. Hertel. Counsellor John F. Evans, of Paterson, has been named agent in charge.

•

## A. A. T. C. C. Notes

Speakers at the winter meeting of the Southeastern section, American Association of Textile Chemists and Colorists, held Feb. 4, in LaGrange, Ga., were W. F. Christman, of Russell Mfg. Co., and R. H. Adams, of Callaway Mills. Mr. Christman spoke on the "Dyeing and Processing of Knit Goods," and Mr. Adams on "The Relation of the Testing Laboratory to the Textile Industry."

The winter meeting of the Piedmont section was held in Greenville, S. C. on Jan. 28. Speakers were W. M. McLaurine, secretary, American Cotton Manufacturers Association; and Prof. H. H. Willis, of Clemson College.

The January meeting of the New York section was held Jan. 27 in Paterson. Dr. H. D. W. Smith of A. M. Tenney Associates, in a paper entitled, "Why Is a Textile Fabric," discussed the physical and chemical structures of various fibers. Dr. Arthur E. Weber, of National Aniline & Chemical Co., spoke on the "Influence of Direct Sunlight on Vat Colors in the Reduced State."

•

## PROCESSING IN THIS ISSUE


| | page |
|---|---|
| Starches and Dextrins for Sizing, Printing, etc. | 61 |
| Face-to-Face Starching Reduces Costs | 64 |
| Water Marks—Causes, Prevention and Cure | 69 |
| Finishing Binding Cloth | 74 |
| Rust Stains in Linen | 75 |
| Fulling Sweater Cloth | 75 |


## Opens Office in Charlotte

American Aniline Products, Inc., New York, manufacturers of dyestuffs, have established laboratory and warehouse facilities in Charlotte, N. C., southern sales headquarters, at 1000 West Morehead St. A. S. Cooley, who has represented the company in the South for the last eight years, will continue in charge of southern sales. E. F. Young formerly with the New York laboratory of the company has been placed in charge of the Charlotte laboratory and technical work.

•

## Resigns Post With Finishers Association

George L. Sawyer, has tendered his resignation, effective Mar. 1, as secretary of the Nation Association of Finishers of Cotton Fabrics, a position which he has held for the last four years. Mr. Sawyer, is a graduate of the University of Illinois and a civil engineer by profession.

•

## Finishers' Stocks

The following data on the status of the finishing industry as of the end of November have been compiled by the National Association of Finishers of Textile Fabrics from members' reports:

**Number of Cases of Finished Goods Held in Storage Awaiting Shipping Orders**

| 1931 | | 1932 |
|---|---|---|
| 33,161 | End of September | 25,617 |
| 32,416 | End of October | 29,726 |
| 32,704 | End of November | 30,790 |

**Number of Bales of Gray Goods in Storehouse Awaiting Finishing Orders.**

| 1931 | | 1932 |
|---|---|---|
| 10,070 | End of September | 16,192 |
| 18,771 | End of October | 17,108 |
| 18,735 | End of November | 20,139 |

These reports are from 24 mills.

## Maher Color & Chemical Co. to Represent Onyx Oil

Maher Color & Chemical Co., Inc., 612 Orleans St., Chicago, has taken over the dyestuff and chemical business of Charles E. Maher and will continue as the midwestern representative of the Onyx Oil & Chemical Co. Charles E. Maher will be president of the Maher Color & Chemical Co.

•

## Dyes for Acetate Yarn

John Campbell & Co., Inc., announces that its dyestuffs for acetate rayon, which were formerly known as the "Celacyl" colors, are now marketed under the trade name of "Camacyl" colors. This change affects only the name and not the properties of the dyestuffs themselves.

•

## Processing Plant News

LEWISTON (Me.) BLEACHERY & DYE WORKS are installing new machinery to dye and finish rayon. The new equipment will process about 100,000 yd. a week.

FALL RIVER (Mass.) BLEACHERY in a financial statement reports as of Oct. 31, 1932, cash at $8,453; receivables at $93,-355; machinery, supplies, etc., at $386,889; real estate at $706,169; current liabilities at $163,847; surplus at $539,413 and capital stock at $500,000.

CLIFTON SILK FINISHING CO., Passaic, N. J., has been organized with capital of 1,000 shares of stock, no par value, to operate a local mill. The principal incorporators are John P. and Thomas J. White, Passaic. Thomas J. Kennedy, 172 Passaic St., Passaic, is representative.

WILSON FINISHING CO., Burlington, N. C., is having plans drawn by H. V. Biberstein, Charlotte, N. C., architect, for proposed three-story addition to mill, with one-story boiler plant adjoining, totaling about 50,000 sq.ft. floor space. Estimated cost over $75,000, with equipment.

COLUMBUS (Ohio) COATED FABRICS CORP. is planning construction of one-story addition, 26x35 ft., on Fifth Ave., for storage and distributing service.

HOPE VALLEY (R. I.) PROCESSING CO. is now in charge of Ira Marcus of Providence, receiver, appointed by the Washington County Superior Court. Chas. W. Blake petitioned for the appointment.

# *Textile World Analyst*

## VOLUME HOLDS UP

## BUT "PROFITS" SHRINK

**Activity Maintained as Year Starts**—Textile activity in January would appear to have been about on the level of that of December. On the basis of such evidence as can be obtained we estimate that there was only about 1% decline in the first month of 1933 as compared with the last month of 1932 and that January 1933 activity was about 1% above that of January 1932. Since no reliable statistical data are available until well into the following month it can be appreciated that this estimate is entirely tentative and subject to revision. If it is reasonably accurate, it means that the rate of mill operations in the first month of this year was approximately 22% below that of the eight year (1924-1931) average for January, assumed by us to represent a "normal" year. When the conditions in most other industries are taken into consideration, this ratio does not seem at all bad.

IF January was a sample of what is in store for the textile industry in 1933, the old story of fair volume with little chance for profit will be repeated. It makes monotonous reading—and equally monotonous, as well as expensive, experience. Of course, the year's still young; there's always that to be said in January.

As an example of what not to do for the rest of the year, the further decline in manufacturing margins on carded cotton fabrices and yarns, as shown in Tables I and II, is offered as an exhibit. With raw cotton advancing at the first of the year and holding remarkably steady throughout the month, cloth and yarns traveled in the other direction—not far, it is true, but far enough to bring margins perilously close to the lows of last July.

In carded fabrics, the average margin for January was 10.4, against 10.6 in December and 9.1 in July. Worse still, the margin for the last week of January was only 10.1. Similarly, in yarns, January average was 10.2 against 10.9 in December and 9.6 in July; the figure for the last week of last month was 9.8.

These facts are not offered as reflecting, necessarily, the exact situation in all branches of the textile industry, but they do indicate that price firmness has not yet become a factor in at least one important division.

To turn to a more pleasant subject, that of volume, statistics released since our last issue went to press demonstrate convincingly the remarkable come-back staged by the industry last year. The consumption of 149,500,000 lb. of rayon in 1932, only a little less than the record of 151,000,000 lb. in 1931, is perhaps the strongest evidence. It brings out the humor in the rumors heard in the trade early last fall to the effect that the shortage in synthetic fibers was simulated by the yarn producers. It looks now as if the latter really were selling some yarn at that time. And probably somebody was buying and using it.

Nor does the total consumption of silk last year appear negligible; deliveries in 1932 were 553,818 bales, against 594,889 in 1931.

Wool consumption was the black sheep of the industry last year—but manufacturers of woolen and worsted goods are looking for better things this year.

One of the most encouraging reports issued was that for cotton goods. With sales last year 4.8% in excess of production, and shipments 2.7% more than production, it looks as if the cotton industry has adopted *balance* as a fixed part of its policy. When it is realized that cotton manufacturers started this year with stocks at the lowest year-end point on record and with unfilled orders at the highest December level since 1929; and when it is realized further that raw cotton advanced at the beginning of the year and held firm through January, it is a little hard to explain the trend in margins previously referred to. Possibly someone has an answer: we haven't.

What about business in general? Well, editors of the 115 publications in the Associated Business Papers, Inc., reported at the middle of the month that the trend was "faintly upward." Railroad carloadings had been asscending gradually until they were only 9% below a year ago. Heavy engineering construction began the year encouragingly with the letting of 40% more contracts than in the same period of 1932. Some other industries reported a little cheer; still others injected sour notes. But even a "faint" upward trend is something.

TABLE I. CARDED FABRIC MARGINS

| Date | Margin in cents |
|---|---|
| July, 1931 | 15.3 |
| October, 1931 | 13.3 |
| January, 1932 | 12.1 |
| June, 1932 | 9.5 |
| July, 1932 | 9.1 |
| August, 1932 | 11.1 |
| September, 1932 | 13.0 |
| October, 1932 | 12.6 |
| November, 1932 | 10.7 |
| December, 1932 | 10.6 |
| January, 1933 | 10.4 |
| Wk. end. Jan. 4 | 10.6 |
| Wk. end. Jan. 11 | 10.6 |
| Wk. end. Jan. 18 | 10.2 |
| Wk. end. Jan. 25 | 10.1 |

TABLE II. CARDED YARN MARGINS

| Date | Margin in cents |
|---|---|
| July, 1931 | 12.6 |
| October, 1931 | 12.7 |
| January, 1932 | 10.9 |
| June, 1932 | 9.9 |
| July, 1932 | 9.6 |
| August, 1932 | 9.7 |
| September, 1932 | 12.8 |
| October, 1932 | 12.3 |
| November, 1932 | 11.3 |
| December, 1932 | 10.9 |
| January, 1933 | 10.2 |
| Wk. end. Jan. 4 | 10.6 |
| Wk. end. Jan. 11 | 10.1 |
| Wk. end. Jan. 18 | 10.1 |
| Wk. end. Jan. 25 | 9.8 |

## *Textile World's Index Numbers*

| Date | Cotton Index Numbers: Cotton | Cotton Yarns | Gray | Colored | Wool Index Numbers: Wool | Tops | Yarns | Cloth | Raw Silk Index: Date | Raw Silk |
|---|---|---|---|---|---|---|---|---|---|---|
| July 31, 1914 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | July 31, 1914 | 100 |
| 1925 | 193 | 193 | 193 | 177 | 221 | 226 | 222 | 234 | 1924-25 season | 140 |
| 1926 | 146 | 159 | 161 | 152 | 189 | 195 | 199 | 210 | 1925-26 | 172 |
| 1927 | 130 | 146 | 153 | 147 | 179 | 184 | 186 | 195 | 1926-27 | 141 |
| 1928 | 160 | 162 | 163 | 166 | 218 | 201 | 198 | 197 | 1927-28 | 126 |
| 1929 | 158 | 163 | 156 | 168 | 182 | 184 | 193 | 198 | 1928-29 | 126 |
| 1930 | 114 | 131 | 127 | 147 | 131 | 143 | 164 | 190 | 1929-30 | 104 |
| 1931 | 75 | 97 | 99 | 121 | 102 | 114 | 134 | 165 | 1930-31 | 62 |
| 1932 | | | | | | | | | | |
| Jan. | 53 | 78 | 74 | 102 | 94 | 104 | 127 | 147 | Jan., 1932 | 41 |
| April | 49 | 75 | 73 | 98 | 83 | 98 | 121 | 133 | May, 1932 | 28 |
| July | 47 | 68 | 62 | 96 | 59 | 72 | 101 | 116 | July, 1932 | 25 |
| Oct. | 52 | 83 | 78 | 107 | 82 | 97 | 115 | 130 | Oct., 1932 | 37 |
| Dec. | 48 | 74 | 69 | 103 | 77 | 87 | 108 | 125 | Dec., 1932 | 33 |
| Jan. 1933 | 50 | 72 | 67 | 100 | 77 | 85 | 105 | 125 | Jan., 1933 | 33 |

# Style fabrics must keep pace with fickle fashion

Styles change rapidly, without rhyme or reason. If style fabrics are to earn full profit they must follow right on the heels of market trends. Speed is essential, and weavers or knitters who spend just a little too much time in getting the right yarns often miss their opportunity.

Quissett is attuned to the lightning changes of style. Many times we have supplied special yarns within 24 hours . . . and have enabled weavers to put their goods on the market ahead of all others. Crepe yarns, cotton backed sateen yarns, twister cords, slub stripes, Quitex Spun Rayon, and a host of other special yarns to suit the fabric you're planning—all of typical Quissett quality, uniform and right in twist.

Utilize this fast service on special yarns. It will give your style fabrics a strong, strategic position on the market. Write for samples in any put-up.

**Quissett Mill**
New Bedford, Mass.
Wm. M. Butler, Pres.
Edward H. Cook, Treas.
Thomas F. Glennon, Agent

QUISSETT MEANS QUALITY

Our Quotations based on
Cost + a reasonable profit

QUISSETT
Cotton Yarns
AND
Quitex Spun
Rayon

# *To the* **WEAVERS** *of* **AMERICA–**

## What does this "BUY AMERICAN" movement mean to you in dollars and cents?

IN THE United States you see it everywhere. Featured articles and editorials in the newspapers, leading stories in the great national magazines. Soon it will be on posters and automobile license plates—this great movement.....

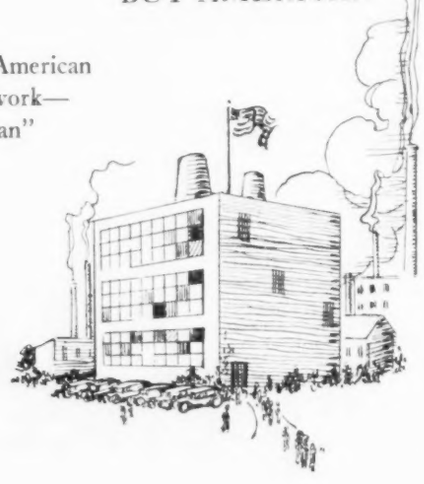
"BUY AMERICAN"

What is it all about? Is it just a flurry of excitement or is it based upon fundamental business conditions that can seriously affect American industry, commerce and workmen? Here are the conditions that have caused many of the best minds in American business to come to the conclusion that it is imperative for Americans to...

"BUY AMERICAN"

It is generally understood that the greatest market for American products is the United States market—in fact, about 90% is consumed within our own boundaries. Naturally, if our industries are to prosper and our workers are to earn and buy, American factories must hold this business. As an American weaver, this is important to you.....

"BUY AMERICAN"



Let us keep American Factories at work— "Buy American"

Because about forty foreign countries have gone off the gold standard—some currencies have depreciated as much as 35 to 50% — the American market is being flooded with foreign goods of hasty manufacture. Because of lower wages and other costs, these goods can be laid down in American ports, in spite of our tariffs, at much less than the bare cost of manufacture by American concerns. This is happening in scores of industries — closing factories, taking jobs away

Keep American workmen busy— "Buy American"

from workmen, taking money out of the country and making the American wage earner less able to buy your goods. Also, in most cases, foreign substitutions are a poor buy when compared with the standard American products.....

"BUY AMERICAN"

+ + +

Now let us talk about *textile spools.* As a weaver you are interested in the package on which your yarns are received. You have the right to expect the best spool that has been developed — a spool made by American workmen who in turn buy your goods.

The undersigned American spool manufacturing concerns have for many years produced the finest type of *vulcanized fibre-head spools,* — spools developed to give the best results to the weaver.

Because of the low first cost of foreign spools, some synthetic yarn is being shipped to weavers on these spools, most of which are made of soft moulded fibre. Let us see how these spools act

on the creel. In the first place, moulded spools cannot give even tension. This causes many broken ends through no fault of the yarn. Lost time, in frequent piecing-up and locating lost ends, increases your costs. Because these foreign spools are of soft fibre, moulded—not machined—they rarely run true on the spindle. Heads warp and nick with slight use, causing uneven traverse of the yarn while winding—resulting in overlapping ends and tuck-ins. Many weavers have found that more or less yarn is wasted or has to be rewound because heads loosen or come off.

The wrong spool on your creels can do much to increase costs and cause imperfect weaving. The right spool cuts down warper stops, saves yarn and does much to improve the quality of the finished goods.....

"AMERICAN SPOOLS
for the
AMERICAN WEAVER"

Protect American industry
"BUY AMERICAN"

Just what are the main qualities that make a spool best for warping operations?

1. It must run true on the spindle.
2. It must have heads that will not loosen, dent, nick or warp—thus preventing trapping, tuck-ins and overlapping of yarn.
3. It must be capable of long use without losing its good qualities.

+ + +

The combined experience, over many years, of 90% of American spool manufacturers proves that *machined, vulcanized fibre-head spools* have the advantages given above and best serve the weaver taking yarn from spools.

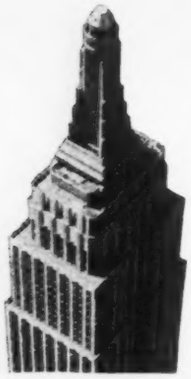
When buying yarn, specify that it be shipped on vulcanized fibre-head spools — keep American workmen busy and you help American industry, including yourself.

**"BUY AMERICAN"**

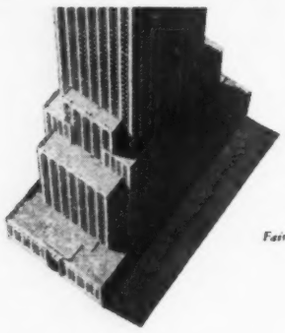
*Keep American* workmen busy.
*Keep American* money at home and it will visit you again.
*Keep American* spools on your creels by asking for American-packaged yarn.

In the interest of American workmen and American business, this advertisement is sponsored by the following concerns:—

Allentown Bobbin Works, Inc.
Allentown, Pa.
Clover Leaf Mfg. Company
Honesdale, Pa.
Freeland Bobbin Corp.
Freeland, Pa.
Lestershire Spool & Mfg. Co.
Johnson City, N. Y.
Merkel Bobbin Company
Allentown, Pa.
Oswald Lever Company, Inc.
Philadelphia, Pa.
Passaic Bobbin Company, Inc.
Paterson, N. J.
L. C. Smith Bobbin Works
Phillipsburg, N. J.
U S Bobbin & Shuttle Company
Manchester, N. H.
Carpenter Steel Company
Reading, Pa.
Continental-Diamond Fibre Co.
Bridgeport, Pa., and Boston, Mass.
Fidelity Felt Company
Philadelphia, Pa.
National Vulcanized Fibre Co.
Wilmington, Del.
F. L. Patterson
Wellsboro, Pa.
Synthane Corporation
Oaks, Pa.



# MAGNETIC FAME



• Photo by Fairchild Aerial Surveys

**A common trait in human nature is the desire to bask in the shadow of celebrity.**

**The Empire State Building is a good name to head one's stationery. There's a special thrill in travel by 20th Century or Bremen . . Packard or Cadillac.**

**This desire to associate with fame reaches into the field of business too. Those who sell dresses or piece goods are proud to point to "fabrics processed by United".**

**But, even more than pleasure, you're in business for *profit*. That's one more good reason for insistence upon fabrics bearing this famous seal.**

UNITED

TRADE MARK REG. U.S. PAT. OFF.

"The Hallmark of Quality"

## United Piece Dye Works

DYERS, PRINTERS, FINISHERS OF TEXTILE FABRICS IN THE PIECE
SCIENTIFIC WEIGHTING - - SKEIN DYEING

**LODI, NEW JERSEY**

New York Office: 132 MADISON AVENUE

Mills:
LODI, HAWTHORNE, and PATERSON, N. J.

PISGAH QUALITY
A PRODUCT OF
PISGAH MILLS, Inc.
SPINNERS OF THREAD AND MERCERIZING YARNS
BREVARD, N.C.

GREEN RIVER QUALITY
A PRODUCT OF
GREEN RIVER MILLS, Inc.
SPINNERS & PROCESSORS
TUXEDO, N.C.

*Buyers of Fine Qualities*

MISSISSIPPI DELTA *and* EGYPTIAN
LONG STAPLE COTTON

*and Manufacturers of*

HIGHEST QUALITIES *of* THREAD
*and* MERCERIZED YARNS

*Your inquiries will be appreciated*

30's to 120's Combed, Natural and Mercerized. One, two, and three ply skeins, cones, tubes, and ball warps. Fugitive tinting in a wide range of shades.

GREEN RIVER MILLS, Inc.
PISGAH MILLS, Inc.

Tuxedo, N. C. Brevard, N. C.

W. M. SHERARD, *General Mgr.*, Tuxedo, N. C.

Telephone & Telegraph Address: Hendersonville, N. C.

*Watch for our announcement in each issue of Textile World*

## FALLS YARN MILLS

Woonsocket
R. I.
*Incorporated 1904*

**Fine Woolen and Merino Yarns**

**SELL DIRECT**

Philadelphia
H. R. Shirley, Packard Bldg.

Chicago
O. J. Caron, 222 W. Adams St.

## MURDOCK Bobbin Holders

We now make a holder with especially constructed Lugs for holding the

**Automatic Bobbin**

also the Regular Filling Bobbin having 1 3/16 inch head.

If you are using automatic bobbins let us send you a set.

Write us regarding all matters pertaining to bobbin holders, as we make many kinds, and are sure we can be of help to you.

**MURDOCK & GEB CO., Franklin, Mass.**

**Manufacturers of Bobbin Holders for Over Thirty Years**